

A STUDY ON PAKKAVATHAM

Dissertation Submitted To

THE TAMIL NADU DR.M.G.R Medical University

Chennai – 32

For the Partial fulfillment for The Award of Degree of

DOCTOR OF MEDICINE (SIDDHA)

(Branch – III, SIRAPPU MARUTHUVAM)



DEPARTMENT OF SIRAPPU MARUTHUVAM

Government Siddha Medical College

Palayamkottai – 627 002

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Submitted by

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Dissertation Subject : **A STUDY ON PAKKAVATHAM**

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INTRODUCTION

NATURE AND HUMAN BEINGS are the wonderful creations of God. Pray and praise the god for creating Nature which provide Land, Water, Air, resources, rain, for human beings for their better survival; It is the ultimate duty of human being is to protect the nature and live in Nature.

Indian Sub Continent is famous for its own medical system which strictly confines with principles of nature called Indigenous system. Indigenous system includes Siddha, Ayurvedha and Unani.

Of those indigenous system, Siddha system of medicine is practised in Tamilnadu. It is necessary to know some facts about Tamilnadu before knowing about Siddha medicine.

“T̃ ¼>V[̣ ̣ ̣ ¼>V[̣ṾÂ T̃VéY¼>
kVØáV| x[¼>V[̣B JY>Âz½ ‡ >ṭuz½

As per above quotation the time of origin of Tamil race was immemorial.

Tamilians are Dravidan peoples who are living the landscape between the river Pagruli and Capecomarin.

“ÃÂð¹ gu®ÂzD z\öÂ
¼iVâ½uzD Öç!l_ c^á
Wé©Ã«©A ‡ >ṭµâV|”

They are speaking the language called Tamil, Tamil language is considered to be the superior language than other Dravidian languages. Tamil and Tamilnadu are unseparable.

“ØÃÍ>ṭµ âVØ!ÐD ¼ÃVJM¼é
Ö[ÃY ¼>[kÍm ÃV¥m iT̃JM¼é”
“BV\̣Í> Ø\Vaĩ¹¼é >ṭµØ\Va
¼ÃV_ ÖM>Vĩ “ºzD iT̃V¼ðVD”

The above quotations mentioned by. Subramaniya Bharathi told about Supremacy of Tamil languages.

Tamilnadu is famous for its own literature treasure. Their literature had popular works in love, mankind, hospitality, under Agavilakiyangal and warfare bravery in Puravilakiyangal” The famous Tamil works such as patthupattu, Ettuthokai, Kurunthogai, Padhinenkeel kanakkukal, Aga nanooru, Pura nanooru, and also spiritual works called Saiva Thirumuraigal and Divya prabanthangal which reflects saiva and vainava religious cultures .

Tamil Medicine or Siddha system of medicine is originated from Lord siva, the Supreme God of Tamils and he is also considered to be chief of Siddhars and chief of Sangam poets.

“ØÄV_o!¼k ¼>sÂz Ä>VEkØª[ÄV[”

.....

From Lord shiva it was gifted to Tamils by people called siddhars.

Siddhars are people who are not only physicians but also they are social reformers,

Siddhars knowledge in the field of medicine, Natural Science, Iatro Chemistry, Alchemy and literature are extra ordinary one.

Siddhar the word derived from the term ‘Siddhi’ means perfection or Achievement.

According to siddha system, Medicine, and Nature are unseparable and inter-dependent.

Both the external environment and human body is composed of five basic elements called Pancha boothams which includes land, Water, Fire, Air and Ether. They variation in the ratio of Pancha boothams in nature, reflects as natural calamities such as flood, famine, cyclone, eruptions and volcanoes.

The human body is composed of five basic elements called Land, Water, Fire, Air and Ether; which maintains the integrity of nature humours called vatha, Pitha, and Kapha in a fixed ratio 1 : 1/2 : 1/4 .Any variation in this ratio affects the homoeostasis of human physiology and leads to pathological condition called Pini.

According to siddhars, the ultimate aim of human being is to attain the external bliss; and free from three bondages such as Aanavam, kanmam and Maayai.

To attain external bliss, human body is considered to be the media. So it must have to be protected from diseases. They postulated certain principles of health and hygiene admixed with psychiatry, yoga, meditation, natural- science, spiritualism in Siddha system of medicine.

The Pini must be cured by “Marunthu”, the term Marunthu means which cures physical, mental illness and possess preventive aspects from diseases and also to postpone the Fatal.

According to Siddhar Thirumoolar

“\@©Ãm ci_ ¼åVçB \òÍØ>ªéVzD
\@©Ãm cá ¼åVçB \òÍØ>ªßÄVKD
\@©Ãm ÖM ¼åVF k«Vç\Äz
\@©Ãm ÄVçk \òÍØ>ªéV¼\”

The art of practise of treating, curing illness and preventing illness is called ‘Maruthuvam’. Those who practise such a science are called Maruthuvars.

The physiological functioning of body is based on principles of 96 thathuvas, which includes the functions of sensory and motor systems, psycho-somatic and pscho immuno systems, 6 vital centres, 5 kosams which includes Circulatory, Respiratory, Excretory and Reproductive systems.

The diseases are classified on the basis of Vatha, pitha and kapha and on the basis of affection of vital organs and systems into 4448 types. Of which vatha diseases are 80 in number, and pitha are 40 in number and of Kabha are 20 in number.

The Medicine is divided into internal and external medicines. Each are of 32 types.

Internal medicines are classified on the basis of their potency and Expiry.

Siddhars medical knowledge in the field of pharmacology, Diagnostic science, medicine, Therapeutics, paediatrics, Surgery are tremendous and extra ordinary than other systems of medicine in the world.

The diagnosis is based upon three dhosha theory. They follow precise diagnostic method caused **Envagai thervu** or **Pinniyarium muraimai** and elicited the root cause of diseases.

The therapeutics is based on the principles of Arusuvai, Mukkutram and pancha Bootha principles. They have also taken into account of paruva kaalams, Astrology, Genetic factors in relation to diseases.

The successful of treatment is based on harmony among the physician, pharmacist, patient and medicine.

cuÅk[yì©ÃV[\òÝmçwß ØÄ_kvØª[

Å©ÃªVu íu¼Å \òím ±]òÂzÅ^.

The author had choosen the disease **Pakka Vaatham (Hemiplegia)** for my dissertation subject, because it is one of the type of Vatha disease which affects the individuals in higher incidence.

It is not only cripples the individual but also cripples his own family and society. It's increased occurence in recent times is due to sedentary life styles, abnormal dietary habits.

Cerebro vascular events is the 3rd commonest cause of morbidity and mortality in the world.

The description mentioned in the Siddha literatures about the disease impressed the author very much. Hence I choosen the disease Pakkavaatham.

The disease is correlated with the **Cerebro Accident called “stroke syndrome”** as mentioned in Allopathy.

I had choosen the drug **Kodiveli Chooranam** as internal medicine and **Kiranthi kadhi thylam** as external applications. .

As it is a herbal formulation it is purely safe and free from adverse effects.

The unshakable belief among the people regarding the Vatha diseases that it can be effectively managed only by Siddha medicine than other systems of medicine also initiates the author to choose it for dissertation.

AIM AND OBJECTIVES

AIM

To collect various school of thoughts mentioned in Siddha literatures such as Yugi Vaithya Chinthamani, Siddha Maruthuvam, Agathiar Gunavaagam, Para Rasa Sekaram about the disease Pakka Vatham.

To analyse and review the ideas in above mentioned literatures with references to present trend.

To analyse and review the disease Pakka Vatham on the basis of its affection on various organ systems, Pori Pulangal, Mukkutram and udal Kattukal.

To apply the principles of Envagai Thervu, Neerkuri, Neikuri, in establishing diagnosis and prognosis.

To study the extent of correlation with aetio pathology, classification, symptomatology and diagnostic methods on par with allopathic view.

To conduct the clinical study on Pakka Vatham in both in patient and out patient Departments with reference to Sex, age, Socio-economic status, Habits, Habitat, Life style, Thinaigal and paruvakaalangal.

To study about the pre disposing factors contributing this disease.

To assess the risk factors under modifiable and non modifiable risk factors.

To study about Preventive aspects.

To apply the principles of management as advised by Siddhars regarding Elimination of cause, prevention of recurrence, Treatment of disease with co-existing clinical conditions, such as Hypertension, Diabetes mellitus etc.,

Rehabilitation and Reassurance therapy with Thokkanam, Yoga, Meditation etc.,

To conduct a clinical trial on drugs Kodiveli chooranam

To perform the Bio- Chemical analysis of drug.

To perform Pharmacological analysis to evaluate the

Anti coagulant action

Analgesic action

Acute Anti inflammatory action

To perform the toxicological analysis of dissertation drug.

To apply the modern parameters on investigation side to confirm and follow the prognosis.

To apply the principles of pathiyam specific to this disease.

SIDDHA ASPECT

The siddha system of medicine deals each and every corner of science, when viewed in its proper perspective, the body is nothing less than an evolutionary wonder, an unbelievably complex instrument capable of supporting limitless possibilities for human life.

This marvel nature can be studied from many points view, the conceptual model that "Siddha" uses to understand the principles of nature functioning is called "Pancha Butham" or the "Theory of Five Elements". This theory serves as the foundation for all of Siddha's diagnostic and treatment modalities and has allowed physicians for millions of years who successfully detect and treat imbalances any where in human life.

The Ancient Siddha literatures classify the diseases into the number of 4448. The classification is based on the "Three Dosha Theory". In such a way Eighty types vaadha diseases are classified and "Pakkavaadham" is one of them. Before reviewing the specific science and symptoms of "Pakkavaadham" the details of vaadham are important and basic.

DEFINITION

Vaadham is one of the Three humours namely Vaadham, Piththam, and Kabham and it consists of Vayu (Air) and Aahaayam (Sky), the two of five elements i.e., Pancha Butham.

Elements which become THODAMS in the Body

| | |
|-----------------------------------|----------------|
| Aahaayam (Space) Vayu (Air) | Vaadha Thodam |
| Teyu (Fire) | Piththa Thodam |
| Appu (Water) Piruthivi (Earth) | Kabha Thodam |

It would be incorrect to think of the "Thodams" only as the Three dynamic elements manifesting in the body. These active elements are always supported by the two unchanging elements, for change can only happen upon the foundation of non-change. Thus Vayu and Aahaayam combine to become 'Vaadha Thodam' which controls all aspects of movements as well as space within the body. In spite of this combination, however, "Vaadha Thodam" tends to primarily display the characteristics of Vayu-wind. The words "dry, light, cold, quick, rough, minute and mobile" describes the characteristics of "Vaadha Thodam".

Teyu, in conjunction with some of the qualities of vayu and Appu, becomes "Piththa Thodam" This is the function that governs all the body's conversion processes as well as its heat and energy producing capacities. 'Piththa Thodam' is primarily characterized by the qualities of Teyu, which are "hot, sharp, penetrating, light, acidic, and slightly oily".

'Appu' supported by "Piruthivi" becomes "Kabha Thodam" and controls liquefaction, lubrication and cohesion. It is also responsible for giving solidity and structure to the body. 'Kabha Thodam' primarily reflects the qualities of the water, but also some traits of the earth elements, consequently, 'Kabham' is heavy, slow cold, steady, solid and oily.

Another interesting feature of the 'Thodas' is that each has a taste (mWRit) associated with it.

"Vaadham" is mostly Pungent,

"Piththam" is Sour and

"Kabham" is Sweet.

"thjkha; gilj;J

gpj;j td;dpaha; fhj;J - nrl;g

rPjkha; Jilj;J"

- njiuah; kUj;Jtghujk;

THODAMS AND THEIR FUNCTIONS

| | |
|----------------|-----------------------------|
| Vaadha Thodam | Separation / Movement |
| Piththa Thodam | Conversion / Transformation |
| Kabha Thodam | Cohesion / Liquidity |

These three humours Vaadham, Piththam and Kabham are more or less correlated with Air, Gastric juice and saliva respectively. They circulate in the body system in different proportions and help in the digestion of food and other general physiological functions of the body. Each of them has different functions. Yet it is harmony, the right proportion of each, the proper combination of the three humours which are responsible for maintaining the good health.

When the all-environmental items like diet, weather etc., disturb Vaadham, it loses its control, which may be diminished or exaggerated. So the other two “Thodams” are also disturbed which are in peculiar Equilibrium State. Finally this may lead to "Vaadha" diseases.

LOCATIONS

Generally “Vaadham” lives in,

1. Abaanan
2. Edakalai
3. Kaamakodi
4. Undhiyin keezh moolam
5. Hip region
6. Bones
7. Muscles
8. Nerves
9. Joints
10. Skin
11. Hair follicles and
12. Stools.

Physiologically 'Vaadham' which has no alterations, lives in Gastro Intestinal Tract, Bones, Ear, Thigh, Hip and Skin.

NATURAL PROPERTIES OF VAADHAM

1. Giving briskness
2. Expiration and Inspiration
3. Functioning the mind, thoughts and body
4. Regulation of the "Fourteen Physiological Reflexes", (Vegam)
5. Functioning the "Seven Udakattukal" uniformly
6. Protection and strengthening of the Five sensory organs. (Iymporigal)

FUNCTIONS OF VAADHAM :

1. Body ache
2. Pricking pain
3. Tearing pain
4. Nerve weakness
5. Shivering
6. Mental distress
7. Dryness
8. Movements
9. Weakness
10. Joints pain
11. Traumatic pain
12. Dislocation of joints
13. Weakness of organs
14. Pilo-erection
15. Paralysis of limbs
16. Polydypsia
17. Severe pain in calf and thigh muscles
18. Bony pricking pain
19. Anuria and constipation
20. Unable to do flexion and extension of the limbs.
21. All tastes to be like astringent.
22. Excess salivation and
23. Darkness of skin, eyes and urine.

QUALITIES OF VAADHAM

Own Qualities

| | | | |
|----|-------------|---|----------|
| 1. | Kadinam | - | rough |
| 2. | Varatchi | - | dry |
| 3. | Elesu | - | light |
| 4. | Kulirchi | - | cold |
| 5. | Asaidhal | - | unstable |
| 6. | Anuththuvam | - | subtle |

Opposite Qualities

| | | | |
|----|---------|---|----------|
| 1. | Mirudhu | - | soft |
| 2. | Pasumai | - | unctuous |
| 3. | Paluvu | - | heavy |
| 4. | Akkini | - | hot |
| 5. | Sthiram | - | stable |
| 6. | Katti | - | solid |

RELATION WITH TASTE

The tastes, which increase 'Vaadham' are Sour and Astringent.

**"g[spJth; tp";R';fwp ahw;g{hpf; Fk;thjk;
xspa[th; ifg;ngwpy; gpj;JrPWk; - fspbkHhpna
fhh;g;gpdpg;g[tp";rpw;fgk; tp";R"; rl;oujr;
nrug; g[zh; nehaqfhnj]"**

- fz;qrhkpak;

The Tastes, which neutralizes Vaadham, are Sweet, Sour and Salt.

**“thj nkypl;lhy; kJuk; g[spa[g;g[
nrjKwr; bra;a["; rpiwak; - Xjf;nfs;
fhue; Jth; frg;g[fhl;L"; Ritbay;yhk;
rhug; ghpfhu"; rhw;W”**

- fz;qrhkpak;

RELATION WITH ELEMENTS

Vaadham = Vali + Aahaayam

The Vali is present in bitter, pungent and astringent.

The Ahaayam is present in bitter only

| | | |
|------------|---|---------------|
| Sweet | = | Earth + Water |
| Sour | = | Earth + Fire |
| Salt | = | Water + Fire |
| Bitter | = | Air + Sky |
| Pungent | = | Air + Fire |
| Astringent | = | Earth + Air |
| Vaadham | = | Air + Sky |
| Piththam | = | Fire |
| Kabham | = | Water + Earth |

Three phases of “Prapakam” (Metabolism)

| PRAPAKAM | THODAM | TASTE | FUNCTION |
|----------|----------|---------|-----------------------------------|
| Inippu | Kabham | Sweet | Moistening of Food |
| Pulippu | Piththam | Sour | Conversion of Food |
| Karppu | Vaadham | Pungent | Absorption and Separation of food |

ALTERATIONS OF VAADHAM

Vaadham is specialized in Aadi, Aavani Purattaasi, and Ippasi physiologically.

The three humours are affected either themselves or with Udal Thaadukkal, pathologically.

The type of alterations of Vaadham are :

1. Thannilai Valarchi (jd;dpiy tsh;r;rp)

Definition : A kutram, which is provoked in its own location is called “Thannilai Valarchi”

| | | |
|------------|---|---|
| Limitation | : | Hatefulness of the things which are causing Thannilai Valarchi and likeness of the things which are getting opposite properties are the limitations of "Thannilai Valarchi" |
| Duration | : | Vaadham gets "Thannilai Valarchi" during Mudhuvenir kaalam (Aani and Aadi) |

2. Vetrunilai Valarchi (ntw;W epiy tsh;r;rp) :

| | | |
|------------|---|--|
| Definition | : | A kutram, Which is provoked to other locations is called "Vetrunilai Valarchi" |
| Limitation | : | Signs and symptoms of the affected kutram and the pathological conditions of the Udal Thaadhukkal give the details of the limitations. |
| Duration | : | Vaadham gets "Vetrunilai Valarchi" during Kaar kaalam (Aavani and Purattaasi) |

3. Thannilai Adaidhal (jd;dpiy miljy;)

| | | |
|------------|---|--|
| Definition | : | A provoked kutram, which is neutralizing in its own property is called Thannilai Adaidhal. |
| Duration | : | The provoked Vaadham neutralizes during Koodhir kaalam (Ippasi and Kaarthigai) |

FACTORS WHICH ALTER VAADHAM

1. When hot foods are mixed with Vaadham, "Vaadham" gets "Thannilai Valarchi".
2. When cold is mixed with Vaadham, "Vaadham" gets 'Vetrunilai valarchi'.
3. And when oily foods with hotness are mixed with vaadham, "Vaadham" neutralizes in its own property that means healthy conditions.

“tha[tpd; Fzj;Jld; Nlqfpy;
tha[tpdpl';fspy; neha;fSz;L
tha[tpy; Fsph;r;rpjhd; Toonyh
te;jpLk; eypfSk; ntwplj;nj
tha[tpy; mdy;jUk; bea;g;gike;jhy;
tha[t[k; ml';fpLk; tha;ikapJ
tha[tpd; gpzpfisg; nghf;fplnt
tFj;jpLk; KdpbkhHp fz;oLnk”
rpj;j kUe;Jth';f RUf;fk;

DESCRIPTION OF VAADHAM

The Siddha classical texts divide the general principles of vaadham into ten subsidiary forms differ from one another by their localization in the body (Anatomical) and by their particular functions (Physiological). They are,

(1) PIRAANAN (Heart Center)

It corresponds to the Cardiac plexus and refers to the chest. It maintains the action of the heart the functioning of the mental faculties of perception and concentrations and also cares for the arteries, veins and nerves. It regulates the respiration and digestion. It is otherwise called as "Uyirkkaal".

(2) ABAANAN (Moolaadharam center)

It corresponds to the Pelvic plexus and controls the excretion. It is focused in the lower part of the gut and also occupies the sites in the bladder and genitals. It has a tendency to travel downwards. It moves in the whole Genito Urinary Tract and regulates the defaecation, micturition, menstruation, parturition and ejaculation. It is otherwise termed as "Keezhnökkumkaal"

(3) VIYAANAN (Fore head center)

It corresponds to the naso ciliary plexus at the root of the nose and base of the skull and controls the will. It helps in the circulation of energy throughout the entire nervous system and the movements of various parts of the body. It also transports

nutrients and blood throughout the entire body. It is also known as "**Paravukaal**"

(4) UDHAANAN (Throat Center)

This corresponds to the pharyngeal plexus in the throat region and controls speech and breathing. It is also responsible for the physiological reflex actions like vomiting, hiccup, cough, etc., It has the tendency to travel upwards. It is otherwise named as "**Melnokkukaal**"

(5) SAMANAN (Navel Center)

It corresponds to the solar plexus in the navel region and controls digestion. It selects the useful substances from the swallowed food and supplies them to the whole body. It balances the other 'Vayus' it is also called "**Nadukkaal**"

(6) NAAGAN

It is responsible for the intelligence of an individual, winking, singing and hair raising.

(7) KOORMAN

It is responsible for yawning, closing of mouth (immovable of lower jaw) winking, shedding of tears, vision and opening of the eyes.

(8) KIRUGARAN

It is responsible for salivation and nasal secretion. It helps in digestion and meditation. It produces cough and sneeze.

(9) DHEVATHATHAN

It is responsible for laziness, lassitude, to quarreling arguing, begging and also for much anger. It helps movements of the eyeball in various directions and is present in genital and anal region.

(10) THANANJEYAN

It is present in nose and responsible for swelling of the body and tinnitus. It leaves

from the body by blowing up the cranium only on the third day after death.

BEHAVIORAL CHARACTERISTICS OF VAADHA DHEHI

- | | |
|---|--|
| 1. Performs activity | - Very rapidly |
| 2. Motivated enthusiastic and excitable | - Very Easily |
| 3. Moods | - Change quickly |
| 4. Learns | - Very quickly and easily |
| 5. Quality of mind | - Quick, creative and imaginative but restless |
| 6. Memory | - Inconsistent varies between weak |
| 7. Digestion | - Inconsistent varies between weak and strong |
| 8. Appetite | - Variable can skip meals occasionally. |
| 9. Quantity of food eaten | - Variable |
| 10. Taste preference | - Sweet, Sour, and Salty |
| 11. Thirst | - Varies |
| 12. Food preference | - Warm, Moist Foods |
| 13. Drink preference | - Hot |
| 14. Frequency of bowel movements | - Irregularly |
| 15. Consistency of feces | - Hard, Dry Stools |
| 16. Perspiration | - Moderate |
| 17. Sexual desire | - Small |
| 18. Amount of sleep | - Usually 5-6 hours. |
| 19. Quality of sleep | - Light, easily interrupted |
| 20. Type of dreams | - Fear, Flying, Running, Jumping Climbing trees and mountains |
| 21. Response to challenge | - Uncertain, Worried and indecisive |
| 22. Speech | - Fast, omitting words and digressing |
| 23. Gait | - Fast, with a light step. |

PHYSICAL CHARACTERISTICS OF VAADHA DHEHI

- | | |
|--------------------------------|--|
| 1. Shape of Face | - Thin body, and elongated plain looking |
| 2. Complexion | - Dark, brownish or Black. |
| 3. Involuntary bodily movement | - Twitching, jerking and fine tremors |
| 4. Body weight | - Light and below normal |
| 5. Built | - Lean, thin, tall or short. |
| 6. Texture or Quality of skin | - Dry, coarse, rough, cracked or scaling and birth marks |
| 7. Skin moistness | - Dry |
| 8. Body temperature | - Low, cold extremities |
| 9. Stamina | - Short |
| 10. Shape and quality of eyes | - Small bulging and deep set with thin and lashes scanty eye lashes. |
| 11. Characteristics of eyes | - Dry, frequent blinking |
| 12. Teeth | - Very small or protruding crooked, easily cracked |
| 13. Nails | - Short, rough, brittle, dark and luster ness |
| 14. Lips | - Dark, dry and cracked |
| 15. Size and shape of fingers | - Very short or long stubby and thick |
| 16. Colour and texture of hair | - Thin, Coarse, dry and wiry, darker in color or balding. |
| 17. Body hairs | - Scanty |
| 18. Joints | - Loose or rigid pronounced crack and pop |
| 19. Veins | - Prominent or branching close to surface |
| 20. Chest | - Long, sunken thin ribs easily visible. |
| 21. Body odour | - Little or no smell or perspiration |
| 22. Tongue | - Dark, brownish, thick, rough and very cracked on the sides. |

AETIOLOGY OF VAADHA DISEASES

The aetiological factors for all types of Vaadha diseases including "Pakkavaadham" have been described generally in "Yoogimunivar vaithya sindhaamani perunool - 800" and "Agasthiyar kanma kaandam - 300"

I. In Yoogi munivar Vaidhaya Sindhaamani - 800

1. Breach of trust.
2. Abusing from the pious elderly people and priests.
3. Exploitation of charitable properties.
4. Ingratitude with mother, father and teacher
5. Excessive eating of bitter, astringent and pungent tastes.
6. Intake of dry and old cooked rice.
7. Drinking of raw rainwater.
8. Sleeping during day and awakening during night.
9. Undue starvation
10. Lifting of carrying of heavy loads.
11. Sexual pre-occupations.
12. Disregarding attitude with God
13. Refusing food destitute and hermits.
14. Disregarding the advice of preceptors.
15. Involving in murdering stealing, lying and lustful activities.
16. Indulging in sexual act during exaggerated vaadham
17. Walking for a long distance.
18. Exposure to chillness.
19. Excessive intake of curd, immediately after excessive intake of vegetables, fruits and tubers will lead to twisting pain in the vertebral column and pain in ankle, knee joints.

"vd;dnt thje;jh bdz;gjhFk;

,fj;jpny kdpjh;fSf; bfa;a[khW

gpd;dnt bghd;djidna nrhu";bra;J

bghpnahh;fs; gpuhkziuj; Jhlzpf;Fk;

td;dnjtr; brhj;jpy; nrhu";bra;J
khjhgpjh FUIT kwe;j ngh;f;Fk;
fd;dnt epe;ij bra;jhy;
fhaj;jpw; fye;jpLnk thje;jhnd”

“jhbdd;w frg;ngHL Jth;g g[iwg;g[
rhjfkha; kp";RfpYk; rik;j tz;zk;
Mbddd;w thwpdJ g[rpj;j yhYk;
Mfhaj; njwyJ Foj;jhYk;
ghbdd;w gfYwf;f kpuhtpHpg;
gl;odpna kfpt[Wjy; guhbka;jy;
njbddd;w bkhHpahh; nkw;rpe;ij ahjy;
rPf;fpukha; thjKpJ brdpf;Fe; jhnd”

“Mdhd tud;widna kjpahkhe;jh;
mfjp gunjrpah;fl; fd;d kPahh;
nfhdhd FUbkhHpia kwe;j ngh;fs;
bfhiy fst[bgha; fhk'; Fwpj;j ngh;f;F
Cdhd rle;jd;dpy; thjk; te;J
cw;gtpf;Fk; ntjj;jpd; cz;ikjhnd”

- a{fp itj;jpa rpe;jhkzp

“gfunf thjkJ nfhgpy; jg;ngH
gz;ghf bgz;ngHf kJjhd; bra;apy;
efunt btFJhu tHpelf;fpy;
espuhd fhw;Wnk gdpnkW; gl;lhy;
kpfunt fha;fs; fdpfpH';F jd;id
kpftUe;jp kPwpna japh;jhd; bfhz;lhy;
Kfunf KJbfYk;ig KWf;fp behe;J
KH';fhYk; fizf;fhYk; fLg;g[cz;lHFnk”

- a{fp itj;jpa rpe;jhkzp

II. In Agasthiar Kanma Kaandam - 300

Kanmam means the deeds good or bad by an individual in previous and present births.

1. Murdering the Children
2. Cutting the living trees
3. Breaking the legs of living animals
4. Cutting the branches and leaves of living trees.

**"Ehbyd;w thjk; te;jtif jhndJ
Jz;ikaha;f; fd;kj;jpd; tifi; nfS
fhypny njhd;wpaJ fLg;g njJ
iffhypy; Klf;fpaJ tPf;fnkJ
nfhypny gLfpd;w tpUl;r khd
FHe;ij kue;jd;id btl;ly;nky; njhy;rPty;
ehtpny rPtbre;J fhy; Kwpj;jy;
ey;ybfhk;g[jiHKwpj;jy; eypj;jy; jhnd"
- mfj;jpah; fd;kfhz;lk;**

CLASSIFICATION OF VAADHA DISEASES

In classification of Vaadha disease, we can find contradictory view regarding the number.

(1) In Yoogi Vaidhya Sindhaamani Perunool - 800 :

Eighty Types of Vaadha diseases are described.

“vd;dnt thjkJ vz;jjhFk;”

But in concluding section of the same text, eighty for Vaadha diseases have been reported.

**“Mkg;gh thjk bjz;jj;J ehY
mjDila Fzh Fz';f yl';fyhf”**

- (2) In Ashtaanga Sangiragam and
- (3) Noi Naadal and Noi Mudhal Naddal Part II Vaadha diseases have been classified as eighty five types on the symptomatology and involvement of different parts of the body.
- (4) Eighty one types of Vaadha diseases have been described in Theraiyar Vaagadam
- (5) In Dhanvandhiri Vaidhdhiyam and
- (6) In Jeeva Rakshaamirdham Eighty nine types of Vaadha diseases have been noted.
- (7) In Agasthiyar - 2000

Forty types of Vaadha diseases are in the upper half on the body and forty in lower half of the body and the total number is eighty.

**“vz;gJ thjkhF kpUtif gLj;jpf; fhzpy;
ez;g[W miuf;F nkny ehw;gJ thjkhFk;
gz;nru iuf;Ff; fPnH gj;J ehd;fhFbkd;W
tz;Lnrh; FHypdhns thjj;jpd; TWjhnd”**

- mfj;jpah; 2000

- (8) In Bohar Vaidhdhiyam 700

Eighty Vaadha diseases are told.

“thr;brd;w thjk; vz;gJt[k; nghFk;”

- (9) In Agasthiyar Gurunaadi - 235 and
- (10) In Agasthiyar Raththina Surukkam - 500

Eighty four Vaadha diseases have been reported.

“kw;wnk thjnufk; tifa[vz;gj;J ehny”

CLINICAL FEATURES

The signs and symptoms of Vaadha diseases have been given in many siddha classical textbooks as follows.

(I) In Agasthiyar Naadi

- (1) Weakness of the limbs
- (2) Sluggishness
- (3) Stiffness and
- (4) Numbness

**“brhy;ynt thj kJ kPwpw;why;
nrhh;tile;j tha[tpdhy; njfbk';Fk;
bky;y iffhy; mrjp a[z;lhFk;
bka;Kl';Fk; epkpubthz;zhj; jpkph; cz;lhFk;”
- mfj;jpah; eho**

(II) In Theraiyar Vaagadam

1. Loss of appetite
2. Back ache
3. Fever
4. Cough
5. Sleeplessness
6. Shivering
7. Pain in the joints
8. Head ache
9. Excessive yawning
10. Constipation
11. Burning sensation of the body
12. Paralysis
13. Excessive salivation
14. Chillness and

15. Tremors

“jf;fttha[nfhgppj;jhy; re;Jt[ise;J jiynehth
kpf;f\hp bfhl;lhtpl; l';bfhpa[ky';fl;Lk;
xf;feuk;g[jhd; Kl';fKyh;e;J tha;eP +hptUk;
kpf;fEspUk; eLf;fKkha; nkdpFswp tU';fhnz”

- njiuah; thflk;

“thjtPW md;dkpw';fhJ fLg;g[z;lhk; tz;zKz;lhk;
nkhJ fl;Lnuhfk; RuKz;lh kpUkYkh Kw';fhhjd;Wk;
XJNhpa thjkdyhF eLf;fKz;lhk; bghUs;fsha;e;
jPbjdnt euk;gprpj;J re;Jfs; njhW'; fpLf;Fe; jhnd”

- njiuah; thflk;

III. In Agasthiar - 2000

1. Giddiness
2. Stabbing pain in the face
3. Redness of eyes
4. Ulcer
5. Abdominal distension
6. Joint pain in upper and lower limbs
7. Numbness in limbs
8. Oliguria
9. Drowsiness
10. Chillness of body

“thjj;jpd; Fznkbjd;dpy; kaf;Fe;jpa';Fk; kyh;rptf;Fk;
ghj';Fsph;e;J rUt';fk;gw;wp elf;FKf'; fL;f;F";
rPjj;Jlnd tapWg[z;zH"; rphpg;gpj; jJ';bjwp \r;rhk;
nghjj; jz;zPh;jhd; th';Fk; g[fGk; g";r Fzkhnk”
“fhy;if fLf;Fe; jpkpUz;lh'; fz;qk; Jh';fp nrhgpf;FK
nfhy";brhpa[k; m';fbky;yhk; Fsph;e;J re;Jfd'; bfhs;Sk;
rPykpFe;J rPh;fhzpy; rpWePh; tw;wptU kpfnt

khyj;jl'; fhz khdidaha; khnjthj nuhfkpnj"

**"thjj;jpd; Fzj;ijf; nfz;kpd; tapWhJk; bghUkpf; bfhs;Sk;
jhJw;w t[lk;g[iffhy; re;Jfs; fLg;g[njhd;Wk;"**

mfj;jpah; - 2000

THE FEATURES OF EXAGGERATION OF VAADHAM

1. Body weakness and darkness
2. Linking to eat hot foods
3. Shivering
4. Abdominal distension
5. Constipation
6. Diminution of immunity
7. Giddiness
8. Insomnia
9. Laziness

THE FEATURES OF DIMINUTION OF VAADHAM

1. Body ache
2. Hoarseness of voice
3. Loss of memory
4. Semi consciousness
5. Difficulty to do any work
6. Paleness and coolness of body
7. Excessive salivation
8. Heaviness of body
9. Anorexia
10. Cough, sleep and abdominal distension

MUKKUTRA VERUPAADUGAL (Pathogenesis)

1. By any one or other etiological factors, Vaadham is vitiated first.
2. Then it affects the other dhoshams Piththam and Kabham which are in three

dhosa equilibrium.

3. And then the ten vayus, seven udarkattugal and other structures are also affected according to the severity of the illness.
4. By the affection of 'Piranaan' wheezing, cough, dyspnoea, nasal congestion and indigestion may occur.
5. By the vitiation of 'Abaanan' constipation, Oliguria and menstrual disorders may occur.
6. By the affection of 'Udhaanan' heart, chest, mouth and eyes are affected and hiccup, vomiting and heart burn are formed.
7. By the vitiation of 'Viyaanan' muscle wasting loss of sensation, giddiness, coma, body ache, numbness, itching and tingling sensation are formed.
8. By the affection 'Samaanan' disturbances of other vayus abdominal distension, anorexia malnutrition and indigestion may occur.
9. When 'Saaram' is affected anorexia, laziness, lassitude, weakness and dryness of skin are formed.
10. When 'Senneer' is affected nerve weakness, dryness, mental disorders, haematuria, jaundice, anaemia, anorexia, spleenomegaly and skin diseases may occur.
11. When 'Oon' is affected muscle wasting, dropsy, body ache, oedema and weakness of five sensory organs are formed.
12. When 'Koozhuppu' is affected body debility, bodyache, joints pain, spleenomegaly and tiredness may occur.
13. When 'Enbu' is affected arthritis, joint pain, osteophyte formation and other bone diseases are formed.
14. When 'Moolai' is affected blurring of vision, oliguria, ulcers, heaviness of the

body and bone diseases may occur.

15. When 'Sukkilam' is affected lustfulness, urinary calculus, bleeding during coitus, orchitis and diseases of genitalia are found.
16. When 'Piththam' is affected anorexia, anaemia, indigestion, blurring of vision, dryness and darkness of skin, vomiting, giddiness, burning sensation of the body and difficulty to do works are formed.
17. When 'Kabham' is affected respiratory disorders, indigestion tastelessness, burning sensation of eyes and joint diseases may occur.

In Vaadha diseases Abaanan, Viyaanan, Samaanan, Naagan, Koormam, and Dhevathathan are affected generally Saaram, Senneer, Oon, Kozhuppu, Enbu, and Moolai are also affected one by one.

NAADI NADAI

In Vaadha diseases the following stages of naadi are formed generally.

1. Exaggeration of Vaadha naadi
2. Vaadha piththa thondha naadi
3. Vaadha kabha thondha naadi
4. Kabha vaadha thondha naadi and
5. Kabha piththa thondha naadi

PAKKA VAADHAM

DEFINITION

Pakka - A prefix which means "Side"

Pakka vaadham - Vaadha disease which is formed due to the 'Paralysis of one half of the body' i.e., upper and lower limbs of the same side. It may be associated with weakness of facial muscles on the same side (Ipsilateral hemiplegia) or opposite side (Contralateral hemiplegia)

In Siddha system of medicine "Pakka Vaadham" means a Vaadha diseases which consists of immobilization of half of the body, paralysis of the upper and lower limbs of

the one side.

Pakkavaadham is one of the Vaadha diseases, which is described in "Yoogi munivar vaidhya sindhaamani perunool - 800". It is a condition which deals with the exaggeration of Vaadham, spreads all over the body, and produces pain, paralysis to the one half of the body (paralysis of upper and lower limb of one side), excessive sweating and paleness of body.

KURIKUNANGAL (Signs and symptoms)

**"cz;ikah a[lk;bg;yhk; tha[thfp
cah;fpd;w ehoaJ mirt[kpd;wpf;
fz;ikaha;f; fhakP jpdpny nawpf;
frf;fpna apHpe;Jnk typj;Jf; fhqk;
gz;ikaha;g; gf;fj;j yprpt[Kz;lha;g;
ghhpj;J gizf; ifa['; fhY'; nfhqk;
td;ikah a[lk;bg';Fk; tpah;it fhqk;
bkyppt[gf;f thjj;jpd; tptue; jhnd"
a{fp itj;jpa rpe;jhkzp**

1. Exaggeration of Vaadham and it spreads all over the body
2. Constriction of the arteries
3. Immobilization of the body
4. Production of the pain all over the body
5. Paralysis of one half of the body
6. Paralysis of upper and lower limbs on the side
7. Paleness of the body
8. Excessive sweating

"Pakkavaadham" is named otherwise "Pakkavayu" In "Siddha Maruthuvam"

narrated by Thiru.Kuppusamy mudhaliar, the pakkavaadham is defined as that it affects the normal functions of upper limb, lower limb, fingers, tongue, mouth & eye.

Pre Symptoms

By any way the vaadham is exaggerated and it leads to heaviness of the body, constipation, angryful, palpitation & fainting before the occurrence of stroke.

Aetiology

- i. Ingestion of vaadha vitiated foods
- ii. Intake of alcohol
- iii. Getting excess of angry
- iv. It may occur as an associated disease for syphilis and heart diseases.
- v. Without showing any pre symptoms it may exist suddenly either during work or awakening from the bed.
- vi. It may develop by numbness, tremors and ends with paralysis.

Symptoms

- i. Inability to use one half of the body
- ii. Loss of functions of upper and lower limbs.
- iii. Unable to flex and extend the lower limbs.
- iv. Presence of circumduction gait.
- v. Deviation of mouth.
- vi. Difficulty to close the eye lids or partially closed.
- vii. Drooling of saliva.
- viii. Unable to speak.

Pathogenesis

1. Exaggeration of vaadham by ingested food and habits.
2. Vitiated vaadham itself initiates piththam and kabham.
3. Vitiated Vaadham
 - (1) affects Abaanan and causes constipation
 - (2) affects udhaanan and causes damage to heart, lungs, mouth and eyes.

- (3) affects viyaanan and causes circulatory disorder. It damages the functions of upper and lower limbs, assimilatory processes, giddiness and wasting of muscles.
- (4) affects samanana and causes indigestion, pleurisy, gastric disturbances, and pain abdomen.

PINIYARIMURAIMAI (Diagnosis)

It is very important part of the treatment. It is helpful to select the correct line of treatment and good prognosis. It is based upon the following diagnostic methods.

I) PORIYAL ARIDHAL

The physician should examine the patient's poriyal with physician's poriyal.

- | | | |
|----------|---|-------------------------------|
| 1. Mei | : | Feels all types of sensations |
| 2. Vaai | : | For knowing taste |
| 3. Kan | : | Meant for vision |
| 4. Mooku | : | For knowing the smell |
| 5. Sevi | : | For hearing |

II) PULANNAL ARIDHAL

The physician should examine the patient's pulannal

- | | | |
|--------------|---|--------|
| 1. Hearing | - | Ear |
| 2. Vision | - | Eye |
| 3. Taste | - | Tongue |
| 4. Sensation | - | Skin |
| 5. Smell | - | Nose |

III) VINAADHAL (Interrogation)

The physician should interrogate about the patient's name, age, occupation, native, socio-economic status, dietetic habits, prone to any allergens, complaints, history of previous illness, history of present illness, family history, personal history, habits and frequency of attacks. If the patient is in the stage of inability to speak, or a child physician should interrogate the details with his immediate relatives who are taking care of him.

IV) ENNVAGAI THERVUGAL

The prime method adopted to diagnose the disease is by means of 'Ennvagai thervugal'. The value of envvagai thervugal is very important for diagnosing purposes, which is the unique and special method describing in siddha medicine. Hence the following makes the diagnosis.

1. NAADI (PULSE)

The study of 'Naadi' is the important factor in 'Ennvagai thervugal' which gives almost the correct diagnosis. Naadi may be studied at ten places in the body, which are Heel, Genital Organ, Abdomen, Chest, Ear, Nose, Neck, Hand, Eyebrow and Vertex. But the study of naadi at hand is the best because the radial artery is located superficially. The unique factor which pertaining the soul in the body is known as 'Naadi'. Naadi must be studied in right hand for men and left hand for women. The three Uyir thaadhukkal are formed by the combination of

| | | | | |
|------------|---|----------|---|----------|
| Edakalai | + | Abaanan | - | Vaadham |
| Pinkalai | + | Piraanan | - | Piththam |
| Suzhumunai | + | Samaanan | - | Kabham |

They can be felt one inch below the wrist on the radial side by means of palpation with the tip of the index, middle and ring finger corresponding of Vaadham, Piththam, and Kabham respectively. The three humours exist in the ratio of 1:1/2 :1/4 normally. Derangement of this ratio leads to various diseases.

**“fhpKfdoia thH;j;jp
ifjdp; eho ghh;f;fpy;
bgUtpuy'; Fyj;jpy;
gpoj;jo eLnt bjhl;lhy;
xU tpunyhoy; thjk;
cah; eLtpuypy; gpj;jk;
jpUtpuy; \d;wpnyhoy;
rpnyj;Jk ehojhnd”**

In cases of vaadha diseases the following stages of Naadi are seen.

- (1) Exaggeration of Vaadham
- (2) Vaadha piththa thondha naadi
- (3) Vaadha kabha thondha naadi
- (4) Kabhavaadha thondha naadi
- (5) Kabhapitha thondha naadi

(2) SPARISAM (PALPATION)

By sparisam the temperature of skin (heat and cold) smoothness or roughness, sweat, dryness, hard patches, swelling, growth of abdominal organs, tenderness and nourishment can be felt.

(3) NAA (TONGUE)

By the examination of tongue its color, coating, dryness, deviation, movements, variations in taste, ulcer and the conditions of teeth and gums can be noted.

(4) NIRAM (COLOR)

By the examination of niram, the type of Dhegam (Body), cyanosis, redness, pallor, yellowish discoloration can be noted.

| | | |
|---------------|---|-----------------------|
| Vaadha Dhegi | - | Dark Color |
| Piththa Dhegi | - | Yellow or Red Color |
| Kabha Dhegi | - | White or Yellow Color |

(5) MOZHI (SPEECH OR VOICE)

In the examination of mozhi, the pitch of voice (low or high), action of laughing, crying, slurring and speech in hallucination can be noted.

(6) VIZHI (EYE)

By the examination of vizhi, pallor, redness, yellowishness, dryness, lacrimation,

sharpness of vision must be noted.

(7) MALAM (STOOLS)

By the examination of malam, its nature, color, quantity. Presence of blood, or mucous can be noted.

(8) MOOTHTHIRAM (URINE)

The examination of urine is classified into two types

- i) Neerkuri
- ii) Neikuri

NEERKURI

It includes examination of colour, odour, deposits, quantity and frothy nature.

NEIKURI

Preparation of patient: Prior to the day of urine examination for neikuri and neerkuri the patient is advised to take the balanced diet and the quantity of food must be proportionate to his appetite. He should have a good sleep.

METHOD

After waking up in the early morning, urine collected in the glass container must be examined within 1½ hours. A drop of gingili oil is added through the side of the vitreous without any disturbing. The nature of neikuri should be noted in direct sunlight.

OBSERVATION

If the drop of oil

- | | | |
|-------------------------------|---|--------------|
| 1. Lengthens like a Snake | - | Vaadha neer |
| 2. Spreads like a Ring | - | Piththa neer |
| 3. Appears like a Pearl | - | Kabha neer |
| 4. Spreads like Snake in ring | | |

Ring in pearl, Snake in pearl etc - Thondha neer

“mubtd ePz;o od; m`nj thjk;”

“MHpnghy; gutpd; m`nj gpj;jk;”

“Kj;bjhj;J epw;fpd; bkhHptbjd; fgnk”

Besides Ennvagai thervugal the disease can also be diagnosed by means of the other methods namely thinaigal, paruvakaalangal, uyir thaadhukkal, udal thaadhukkal, Gnanaendhriyangal and kanmendhiriyangal, hence a thorough knowledge about the disease can be studied out systematically and properly in siddha system of medicine.

PITHTHAM

Piththam is located in Urinary bladder, Heart, Head, Umblicus, Pinkalai, Piraanan, Abdomen, Stomach, Sweat, Blood, Eye and skin. It is classified into five types they are

1. Anarpiththam : It digests all the ingested particles
2. Ranjagapiththam : It gives colour to the blood.
3. Saadhaga piththam : It is used to complete the work properly what he thinks in the mind.
4. Alosaga piththam : It gives vision to the eye.
5. Piraasaga piththam : It gives color to the skin.

KABHAM

Kabham is located in Samaanan, Semen, Fat, Bone- marrow, Nose, Chest, Nerves, Bones, Brain, Large intestine, Stomach and Pancreas. It is divided into five types. They are

1. Avalambagam : It controls the other four types of kabham
2. Kiledhagam : It moistens the food
3. Podhagam : It helps to know the taste
4. Tharpagam : It gives cooling effect to the eyes.
5. Sandhigam : It gives lubricating effect to the joints.

UDAL THAADHUKKAL

There are seven udhal thaadhukkal in human body. They are

1. Saaram : It strengthens the body and mind.
2. Senner : It gives power, knowledge, and boldness to he mankind
3. Oon : It gives the structure and shape to the body and is responsible for the movements of the body
4. Kozhuppu : It lubricates the joints and facilitates their functions
5. Enbu : It protects the joints and facilitates their functions
6. Moolai : It is present in the bones and gives strength
7. Sukkilam / Suronidham : Meant for reproduction.

GNAENENDHIRYANGAL

The five Gnaenendhiryangal are

1. Mei (Skin) : Feels all types of sensations
2. Vaai (Mouth) : For knowing taste
3. Kan (Eye) : Meant for vision
4. Mookku (Nose) : For knowing the smell
5. Sevi (Ear) : For hearing.

KANMENDHIRIYANGAL

The five kanmenthiryangal are

1. Kai (Hand) : Majority of normal works done by hand

2. Kaal (Leg) : For Walking
3. Vaai (Mouth) : For speaking
4. Eruvaai (Anus) : For Defaecation
5. Karuvaai (Genital) : For Reproduction

THINAIGAL

Nilam is classified into five types. They are

1. Kurinji : Mountain and its surroundings.
2. Mullai : Forest and its surroundings. Piththa noigal, Vaadha noigal, Liver diseases are common.
3. Marutham : Field and its surroundings. Safest place to maintain good health.
4. Neidhal : Sea and its surrounding. Vaadha diseases and liver enlargements are common.
5. Paalai : Desert and its surroundings. Vaadha, Piththa and kabha noigal are common.

Study of five lands is very much needed, as some diseases are common in the particular lands.

PARUVA KAALANGAL

A year is classified into six seasons, each constituting two months, They are

1. Kaarkaalam - Aavani and Purattaasi
2. Koodhirkaalam - Iyppasi and Kaarththigai
3. Munpanikaalam - Maargazhi and Thai
4. Pinpanikaalam - Maasi and Panguni
5. Elavenirkaalam - Chiththirai and Vaigaasi
6. Mudhuvenirkaalam - Aani and Aadi

Some of the diseases, during a particular season are commonly prevalent and study of it will also be such useful to diagnose.

The final diagnosis is confirmed by summarizing all the clinical findings observed by the above methods.

NOIKANIPPU VIVAADHAM (DIFFERENTIAL DIAGNOSIS)

There are certain other Vaadha diseases which resemble the clinical symptoms. As "Pakka Vaadham" but they differ in some ways. The careful and clear history taking and examination will reveal the correct diagnosis. They are

1. PATSCHA VAADHAM : (gl;rthjk;)

The clinical features are

1. The legs loose its activity as dead's one
2. Immobility of leg
3. Unable to walk
4. No hand grip to both hands, and loose its sensation
5. Tingling sensation
6. Deviation of mouth and Drooling of saliva
7. Body itself to be very hot.

“jhdhd fhy;nfhzpr; brj;jhw; nghyj;
jhf;fhd jiujdpny eyf;bfhz;lJ
fhdhd iffbshd;Wk; gpobfh lhJ
fdkhd czh;r;rpapd;wpf; iffs; nrhWk;
khdhd kaph;Tr;Re; jpkph;t[z; lhFk;
tha;jhD'; nfhzyna jz;zPh; tPGk;
ngdhd gpj;jk;bgh yfd;W fhqk;
gphpt[gl;r thjj;jpd; bgw;wp ahnk”

2. URAGADHA VAADHAM : (cufjthjk;)

The clinical features are

1. Pain present in the eyebrow, ear and half of the body.
2. Paralysis of the half of the body rarely
3. Involuntary movements of head and mouth
4. Chillness, tingling sensation of the body
5. Excess salivation

“mw;g[jkha; nehthfpg; g[Ut'; fhJ
m';fj;jpw; ghjpphd; typj;bjg; nghJe;
jw;g[jkha;f; nfhzpna jiya[k; tha[e;
jhtnt kpf eL';fpf; Fwpj;j TRk;
tpw;g[jdha; tpHpfSe;jhd; kpifg;g[whJ
bkypthfp rhPubky;yhk; tpah;it ahFk;
g[w;g[jdha; tha; ePU kpfnt a{Wk;
g[ifnk Uunt jj;jpd; ngnu”

- a{fp itj;jpa rpe;jhkzp

3. ARPUDHA VAADHAM (mw;g[jthjk;)

1. Vaadham mostly exaggerated during intercourse, getting angry, singing loudly, chewing betal nut, threatening and scolding others.
2. The exaggerated Vaadham leads to the paralysis and deviation of mouth.

“jPh;f;fkha; !;jphPa';fk; gz;qk; nghJe;
jpLf;bfdnt thh;j;ijnfh gpj;jnghJk;
Cf;fkh a[wj;Jjhk; ghLk; nghJk;
cz;qkty; fr;rhak; ghf;Fe; jhDk;
Mh;f;fkha;j; jl;ona foj;j nghJ

**kHfhd Kfe;jd;dp; tha['; nfhlhj;
jhh;f;fkha; kpfr;rpjwp tha['; nfhq";
rh';fkh aw;g[jth je;jh dhnk”**

- a{fp itj;jpa rpe;jhkzp

4. AMARAKANDA VALI : (Fjpiu typ)

1. Initially, Pain all over the body
2. The limbs loose its strength
3. Fainting occurs
4. Occurrence of convulsions
5. Laughing
6. Excess sweating present in neck, head, shoulder and face.
7. Tongue and face paralyses unilaterally
8. Burning sensation and pain presents in throat, shoulders and back after the completion of convulsions.

“,Jnt aku fz;ltyp

,';Fk; ehf;f Kf';nfhqk;

kJnt iffhY'; bka;ba';F

koe;J Joj;jhw; nghYisa[k;

a[ghJnt fz;l"; rpuRKfk;

g[Jbts;sk; nghw; ePbuhGFk;

kpfnt be";Re; njhw;KJFk;

gw;wp typf;Fk; cjuKnk”

a{fp itj;jpa rpe;jhkzp

MUKKUTRA VERUPAADUGAL (PATHOGENESIS)

1. Any one or other etiological factors vitiate vaadham
2. Then Piththam and Kabham are also affected which are in three dhosha equilibrium.

3. And then Vayus, Udhalkattugal and other structures are also affected.
4. When Vaadham is vitiated body weakness, constipation, diminution of immunity, giddiness and sleeping disturbances are appeared.
5. In Piththam

| | | |
|-------------------|---|---|
| Anar Piththam | - | Anorexia |
| Ranjaga Piththam | - | low haemoglobin level. |
| Alosaga Piththam | - | Diminished vision |
| Saadhaga Piththam | - | Difficulty to use upper limb and lower limb of the affected side. |

(6) In Kabham

| | | |
|-------------|---|--------------------------------------|
| Avalambagam | - | Cough, Disturbances of other Kabhams |
| Pothagam | - | Unable to differentiate the tastes |
| Tharpagam | - | Burning sensation of the eyes. |

(7) In Vayus

| | | |
|----------------|---|--|
| Piraanan | - | Cough |
| Abaanan | - | Constipation |
| Udhaanan | - | Numbness, tingling sensation, pain, muscle wasting in the affected side. |
| Samaanan | - | Disturbances of other Vaayus |
| Naagan | - | Mental disturbances |
| Koorman | - | Productive cough |
| Kirugaran | - | Productive cough |
| Dhevathaththan | - | Sleeping disturbances |

(8) In Udal Tathugal

| | | |
|----------|---|---|
| Saaram | - | Tiredness, anorexia, mental depression |
| Senneer | - | Anorexia, low haemoglobin, level affected side |
| Oon | - | Pain and muscle wasting in the affected side |
| Kozhuppu | - | Difficulty to raise the upper and lower limb of the affected side |
| Enbu | - | Pain in the Joints |
| Moolai | - | Tiredness, heaviness of the affected side in the body. |

TREATMENT OF PAKKAVAADHAM

In Siddha system of medicine the main aim of the treatment is removal of Udalpinigal (due to alterations of uyir thadhukkal and udal thadhukkal) and Ulappinigal (due to Schizophrenia). Treatment is not only for removal of disease but for the prevention and improving the body condition also. This said to as follows.

1. Kaapu
2. Neekkam and
3. Niraippu

Ayyan Thiruvalluar says about physicians duty "Study the disease; spy the cause; seek subsiding ways and do what is proper and effective" and "The man well versed in medical lore, would measure the patient, disease and time before the healing work begins".

**“neha;eho neha;Kjy; eho mJzpf;Fk;
tha; eho tha;g;gr; bray;” - jpUf;Fws;**

**“cw;whd st[k; gpzpast['; fhyK';
fw;whd; fUjpr; bray;” - jpUf;Fws;**

So, it is essential to know the disease, the cause, the nature of the patient, severity of illness, the seasons and time of occurrence must be observed clearly.

The treatment is divided into three types in siddha system of medicine namely Dheva Maruththuvam, Maanida Maruththuvam, Asura Maruththuvam. The Deva Maruththuvam which is one by Parpam, Chendhooram, Sunnam, Padhangam, Kattu, Kalangu and Kurukuligai etc., is high potent and quick effective.

LINE OF TREATMENT

The line of treatment of consist of

1. The purgative drug must be given first to compensate the vitiated Vaadham

2. Medicines, internal and external are to be given for the affected Uyir Thaadhukkal, Udal Thaadhukkal and Vaayus.
3. The Sirappu Maruthuvam are Thokkanam must be done after application of oil for the strengthening the affected part. Varmam, Yogaasanam, Piraanaayaamam and Thiyaanam are also applied as supportive therapy to get quick relief.
4. Physical exercises for both upper and lower limbs must be advised to improve the muscle tone.
5. The food and habits, which are avoiding and adding, are also determined clearly.
6. Kanma neekkam is apart of treatment and it must also be done properly before the treatment.

TREATMENT

(1) PURGATIVE

It corrects the vitiated Vaadham

“ngjpahy; thjk; jhGk”

Murukkanviththu at early morning is given one day before starting the main treatment for given some patients.

**“XJfpd;w kyf;fl;il bahHpa itj;jhy;
clypYs;s thijbayh bkhL';fpg; nghFk;”**

(2) MEDICINES

- i. The Anti - Vaadha drugs the both internal medicine and the external applications are given to relieve the symptoms and strengthen the affected parts.
- ii. Theraiyar processes like kizhi, otradam, pizhichchal and thattudhal are also applied with above medication for better and quick response.

- iii. The 'Kayakalpa' drugs like Chithramoolam are more effective to Vaadha diseases and also for rejuvenating therapy.

(3) THOKKANAM (MASSAGE)

Massage is the first friend, which serves the human beings from the time of birth. It is excellent for relieving muscle aches, muscle weakness, muscular atrophy and it is powerful non-drug method to promote sleep by using medicated oils. To be a good massager, one needs to look at the formation and function of the human Physiology and Anatomy musculature. The Physician should be physically and mentally healthy.

Massage which works with blood vascular system, to improve the circulation of blood to the affected parts, nervous system, and lymphatic system. It's works on the body, both levels of physical and mental. It balances the three Dhosam.

1. PHYSICAL

Rubbing of the body produces heat and increases the blood circulation. It affects the lymphatic system and supplies more blood to the affected area. Body heat and vitality increase as the heart and circulatory open up to provide fresh oxygen and vital energy to all parts of the body while simultaneously drained out waste gases and toxins. As it increases circulation of blood any body temperature massage should be avoided during high blood pressure and Hyper pyrexia.

2. PSYCHE

Through touch massage works on the nervous system and affects the circulation of growth hormone. All feelings and fantasies of the massager one transmitted to the person getting the massage.

Massage, also increases the production of WBC and antibodies, which provide more resistance against foreign bodies. This helps in the defense mechanism of the body and increase immunity towards environmental changes. The medicated oil also helpful to the patient to protect them from bedsores.

3. SIRAPPU MARUTHUVAM

Varumam, Thokkanam, Yogaasanam, Piranaayaamam and Thiyaanan are the sirappu maruthuvam in the treatment of "Pakkavaadham" and they are done as supportive therapy for quick relief.

1. YOGAASANAM (Postures)

The yogaasanams are reliable supportive or sometimes main part of treatment of Vaadha diseases generally or specially. This therapy is regarded as a science as well as a method that allow living a harmonious life. The yogaasanaas are useful not only to revive the body and also to strengthen the nervous system. It is more important than physiotherapy for not spending more physical energy and also provides the mind to be calm. To regenerate the glands and treats the physical and mental illness, they bring the human body under the complete control of the mind.

In cases of improved 'Pakkavaadham' Bhujangaasanam, Shalabhasanam, Pawanamuktasana and in cases of fully affected "Pakka vaadham" Savaasanam are very useful.

1. Bujangaasanam

Position

Lie prone on the blanket keeping the legs together, chin touching the ground and the legs facing up, stretch the hands straight forward, alongside the head resting the palms of the ground.

Procedure

1. Bring the arms back to the level of the 12th rib bone. keep the hands bent at elbows, least pressure to be exerted on the hands maintain the elbows touching the body let it not spread out.
2. Raise the head first and then the upper portion of the trunk slowly, just as the cobra raises its hood, fill the naval portion is about to leave the dorsal spine touch the body below navel straight in touch with the ground.

2. Shalabhasanam

Position

Lie prone on the blanket, keeping the legs and hands together, chin and palm facing the floor and heel facing up. Rest the face towards the floor.

Procedure

Raise the legs upwards without bending the knees for that knee facing towards top and lesser pressure to be exerted by hands on the body to provide support.

Wait for few minutes and then return the same to initial stage.

3. Pawanamuktasanam

Position

He supine on the Plantar the keeping the legs together heel posterior of the thigh, back palms of hands and scapular of the shoulder touching the ground and the face, chest, knees, toes of legs facing upwards.

Procedure

1. Bring the knees close to the neck and that thigh touches the chest closely, chin and fingers of the legs faces upwards, knees bend at the level of nipples.
2. Raise the head first and this upper portion of the trunk slowly and shin touches the knees, tie the hands with one another on the shin to keep the knee close to chest as able as possible.

4. Savaasanam

Position

Lie supine on the ground with hands feet apart.

Procedure

1. Slightly stretch the body and allow the whole body to relax completely.
2. By concentrating the mind on different parts of the body starting from the toes to the head, a feeling of relaxation is propagated.

5. Maharaasanam – I

Stages of Maharaasanam - I

1. Ask the patient to lie in the supine position with the fingers showing Muththirai.
2. Turn the hip and lower limbs towards right side while the neck and head facing left side. Repeat the same in opposite direction.
3. Ask the patient to come back the initial position. Flex knee close to the thigh.
4. In the same position, ask the patient to turn the knee to the left side while neck & head facing towards right side.
5. Repeat the same in upward direction.
6. Ask the patient to come back the initial position. Hold the right leg over to left leg.
7. Turn the hip towards right side while head and neck facing towards right side. Repeat the same in opposite left direction.
8. Ask the patient to flex the left elbow and left knee. Repeat the same in opposite direction.
9. Ask the patient to come back to the supine position and relax.

Stages of Maharaasanam - II

1. Ask the patient to lie down in the floor fact, chest, palms, knees touches the floor as shown in fig - 1
2. Turn the face trunk and hip to the left side. Repeat the same in the right side.
3. Ask the patient to come back to the initial position. Hold the feet touch the thigh by flexing the knee.
4. Turn the feet to the left side while trunk and face towards right side.
5. Repeat the same in the opposite side. Ask the patient to hold the right leg over the left leg and turn the hip towards left side and then right side.
6. Ask the patient to raise the left upper limb and flex the right knee.
7. Repeat the same in opposite side. Ask patient to lie down relax.

(II) PIRANAAYAAMAM

Piraanaa means vital force or oxygen or cosmic energy.

Niyama means the control of the Piraanan.

Regular practice of the "Piraanaayaamam and Asanaas combined with control of the mind will combat negative elements such as ignorance, laziness, inertia and over excitement as well as increasing the will power.

Procedure

One respiration consists of the cycle of inspiration, retention and expiration.

1. First, inhale one part of air through left nostril (Pooragam)
2. Then, retention must be done four parts of air (Kumbagam)
3. Then, exhale two parts of air through right nostril (Resagam)
4. Again inhale through right nostril
5. Then retention
6. And then exhale through left nostril.

These six events complete a cycle of Piraanaayaamam

The main object of Piraanaayaamam is to acquire mastery of the vital force, action within the body. It improves the functions of Piraanan, nourishes the body cells, purifies blood and tones up nerves.

OXYGEN FOR NERVES

The excitability of the central nervous system, i.e., its ability to become active, varies under different conditions.

One of the conditions for normal activity of the brain and spinal cord is an adequate supply of oxygen to the nerve cells. The cells of the brain and spinal cord consume much more oxygen than the cells of other organs. An inadequate supply of oxygen leads to a decrease in the nerve cells and may kill them. It is also clear that changes in the blood circulation in the brain impair the brain's activity because they disturb the normal supply of oxygen and nutrients.

ROLE OF THE NERVOUS SYSTEM

The nervous system regulates the activities of the different organs and of the entire organism. Muscular contraction, glandular secretion, heart action, metabolism and the many other processes continuously operating in the organism are controlled by the nervous system.

The nervous system links the various organs and systems, co-ordinates all their activities and ensures the integrity of the organism.

Human Anatomy and Physiology

by **V.TATARINOV**

In case of 'Pakkavaadham' Piraanaayaamam corrects the disturbed Piraanan tones up the nerves of affected area and also increases oxygenated blood to the body.

(III) THIYAANAM (MEDITATION)

**“bfhy;yhd; bgha;Twhd; fstpyhd; vz;Fzd;
ey;yhd; mlf;f Kilahd; eLr;bra;a
ty;yhd; gFj;Jz;ghd; khrpyhd; fl;fhkk;
,y;yhd; ,akj;jpil apy;epd;whnd”**

**“Jha;ik mUSd; RUf;fk; bghiw brt;it
tha;ik epiyik tsh;j;jny kw;wpait
fhk'; fst[bfhiybadf; fhz;git
nekpaP iue;J epakj;j dhnk”**

- jpUlyh;

Thiyyaanam means the continuous flow of the mind towards "Aathmaa" (soul or mind) through the total exclusion of all ideas foreign to it. The principle disciplines for Thiyyaanam are eyamam and niyamam. Eyamam includes non-violence, truth fullness, non-stealing, and sensation of all women as mothers and sisters except wife and not speaking and doing useless matters. Niyamam means outer and inner purity, contentment austerities, study of scripture and devotion to God. By Thiyyaanam man can know himself, so it is helpful in stressful mental conditions and gives relaxation to mind.

“Yogic physical culture, unlike the many western systems of physical culture, does not make a pretence of merely developing the superficial muscles of the body, but the exercises do make them healthy and strong, particularly the trunk muscles, by requisitioning their help to tone up all the involuntary organs of the body which are mainly concerned with such processes as digestion, evacuation, circulation, respiration and secretion, and through them, the automatic nervous system which regulates their activities from “Yogic asanas for health and vigour ” V.G.Rele, L.M & S., F.C.P.S.

In cases of Pakkavaadham, Thiyyaanam gives complete rest to the body and provides relaxation.

(IV) EXERCISES

EXERCISES FOR HAND

1. Stand in relaxed position
2. Raise both the upper limbs evenly upwards and join together above the head.
3. Bring the upper limbs as in the initial stage.
4. Raise both the upper limbs up to the shoulder level in front of the chest and join together.
5. Extend the upper limbs outwards to the maximum extend while facing the face and palms in same direction.
6. Move the right and left upper limbs alternatively and simultaneously back and front.
7. Raise the up to shoulder level and bring the forearm in front of the chest. Then hold both the thumbs touching together.
8. Stand in the relaxed position and turn the hip. Turn shoulder, neck and head to the left side and do the same turn towards right side.
9. Stand in the knee flexed position and turn the hip, trying to make a circle.

EXERCISES FOR LEGS

1. Ask the patient to sit comfortable as shown in fig.1
2. Bring the both great toes touching together.
3. Turn the both feet towards right side as shown in fig.3
4. Again turn the both feet towards left side as shown in fig.4
5. Flex the right knee and lie over the left thigh. Hold the toes by using the fingers.
6. Repeat the same exercise in the opposite side leg.

7. Ask the patient to be in knee down position, bring the fingers join together behind the hip.
8. Hold the hands in the same position supporting the hip.
9. Ask the patient to bring the fingers behind the buttocks.

5. PATHTHIYAM (Diet regimen)

Paththiyam is also an important part of treatment. It is divided into three types namely Echcha Paththiyam, Kadum Paththiyam and Migakkadum paththiyam. Uppilla paththiyam is also mentioned in many ancient siddha literatures, especially for the vaadha diseases.

Uppillaa Paththiyam

The salt free dieting during treatment and then the same duration of salt free redieting are followed strictly. The day after fried salt must add in diet and taking oilboth with milk of Omam and cow's ghee. Then only salt may be added in diet.

With this, the following food and habits must also be followed. Add twicely cooked rice, brinjal, green vegetables and non-vegetables diet like kaadai (fhil) koudhaari (bfsjhph) udumbu (cLk;g[]) and vellaadu (bts;shL)

Avoid the tubers and other Vaadha vitiated foods.

Avoid the exposure of Cold air.

The bed must be clean without moisture.

Keep the mind peaceful

Padhaarththa Guna Sindhaamani (gjh;h;j Fz rpe;jhkzp) advices the following foods for Vaadha diseases.

Root of water lily (Pontedria vaginalis), Costus root (Costus speciosus), honey, black pepper (Piper nigrum), gingili oil, Asafoetida, Thazhudhaazhai, (Clerodendron phlomoides) Caster oil and Black gram.

“br';fG ePh;nfhI;le; njd;kpsF ey;byz;bza;
j';FbgU'; fha'; jGjhiH - v';bf';F
Tl;LrpW Kj;Jbea; njhjpy; cGe;jpitfs;
thl;Lkzp yj;ij kjp”

- gjhh;j;j Fz rpe;jhkzp

Proper dietetic regimen enhances the effect and bioavailability of the drug and is conducive to the maintenance of good health. If dietetic regimen is not followed properly, certain foods may be incompatible and antagonize the drug effect and produce harmful effects to the body.

“gj;jpaj;jp dhny gyDz;lhfK; kUe;J
gj;jpa';fs; nghdhy; gyd; nghFk; - gj;jpaj;jpy;
gj;jpank btw;wpjUk; gz;ojUf; fhjypdhw;
gj;jpank cj;jpbad;W ghh;”

njiuah; akf btz;gh

VAADHA PACIFYING FOOD LIST

| | | |
|------------|---|--|
| Grains | : | Barley, Amaranth, Wheat, oats and Quinoa. |
| Legumes | : | Mung beans, Aduki beans, Split yellow mung dal, Red and yellow split pea. Urad dal. All these should be cooked to a soft consistency. |
| Fruits | : | Sweet and sour tastes, like grapes, lemons, pears, bananas, sweet organs dates, figs, apples (preferably cooked) avocados berries and a small amount of raisins. |
| Vegetables | : | Sweet vegetables like beets, cauliflower, leeks, carrots, asparagus, cilantro, fennel and a small amount of garlic, green beans, green chilies, okra, parsnips pumpkins and radishes (Preferably cooked) |
| Spices | : | Avoid using hot, pungent, drying spices. Use fresh spices like gingerroot, cilantro, cumin, coriander and fennel seeds, turmeric and asafoetida (hing) |

| | | |
|-------|---|---|
| Dairy | : | Fresh, whole and homogenized milk ghee and a small amount of butter. |
| Meats | : | White meat like chicken, fish, or turkey (Baked or broiled) and chickens broth. |
| Nuts | : | A small amount of almonds, pecans and sesame seeds. |
| Oils | : | Sesame and olive in a smaller amount. |

6. KANMA NEEKKAM (EXPIATION)

Kanma means the deeds which are bad, committed by an individual in this and previous births. So he must expiate, it to get better relief before the treatment.

To expiate the misdeeds of kanmam

Planting the young trees.

Establishing the gardens.

Laying roads and pathways.

Digging wells

Ponds for public use.

Constructing temples and

Denouements to poor children must be done.

**“eypahny te;j fd;kk; jPubtd;why;
ed;ku';fs; njh;g;g[eilrhiy itj;jy;
bjspthd fpzWbtl;ly; Fs';fs; btl;ly;
bja;tjyk; nfhapy; fl;l; jPUk;ghU
vspjhd ghyfhf; fhguz kPjy;
vd;g bjd;w thjbky;yh tple;JnghFk;
gHpahd neha;te;jh ypg;gona bra;J
ghpthf itj;jpaj;ijg; gpwF bra;na”**

mfj;jpah; fd;k fhz;lk; 300

REVIEW OF LITERATURES MODERN ASPECTS ANATOMY

INTRODUCTION TO NERVOUS SYSTEM

The nervous system which controls all motor and sensory functions of the body, may be divided into The central nervous system made of brain and spinal cord.

The peripheral nervous system consisting of the peripheral nerves and ganglia associated with them.

In central nervous system, the brain consists of

1. The Cerebrum comprising two large cerebral hemispheres
2. The Cerebellum
3. The Mid brain
4. The pons
5. The Medulla oblongata

The Mid brain, the pons and the medulla together form the brain stem. The medulla is continuous below with the spinal cord. Peripheral nerves attached to the brain are called cranial nerves and those attached to the spinal cord are called spinal nerves.

In peripheral nervous system, the peripheral nerves include those that supply the skin, muscles, joints, limbs and those that supply visceral structures (e.g) heart, lungs, stomach etc. Each of these sets of peripheral nerves is intimately associated with the brain and spinal cord. The nerves supplying the body wall and limbs are often called cerebrospinal nerves. The nerves supplying the viscera along with the parts of the brain and spinal cord related to them constitute the autonomic nervous system. The autonomic nervous system is subdivided into two major parts as sympathetic and parasympathetic nervous system.

The specialized cells that constitute the functional units of nervous system are called “Neurons”. Neurons are supported by a special kind of connective tissue called neuroglia. The nervous tissue is richly supplied with blood.

A neuron consists of a cell body that gives off a variable number of processes. Most neurons give off a number of short branching processes called “Dendrites” and one large process called an ‘Axon’. In a dendrite the nerve impulse travels towards the cell body, whereas in an axon the impulse travels away from the cell body. Axons having a myelin sheath are said to be myelinated and those without it are said to be unmyelinated.

The peripheral nerves are collections of nerve fibres, these fibres are simply axons. In some cases they are dendrites that are indistinguishable in structure from axons.

An axon may give off a variable number of branches. An axon can terminate in two ways. Within the central nervous system the axon always terminates by meeting another neuron. The junction between the two neurons is called a synapse. Outside the central nervous system, the axon may end in relation to a muscle or to a gland or may end by synapsing with neurons in a peripheral ganglion.

FORMATION OF CENTRAL NERVOUS SYSTEM

The nervous system developed from the ectoderm called neural ectoderm. It is formed anterior to the Hensen's node of embryo. The neural ectoderm will become neural groove. The neural groove deepens and develops lips elevated in either side. The elevated lips of neural tube are becoming brain vesicles. The brain vesicle is divided into three bulb-like swellings called prosencephalon, mesencephalon and Rhombencephalon.

1. PROSENCEPHALON

It is otherwise called as fore brain which is divided into Telencephalon and Diencephalon. The telencephalon becomes cerebral hemispheres and forms a cavity called lateral ventricles. The diencephalon becomes thalamus and forms a cavity called third ventricle.

2. MESENCEPHALON

It is otherwise called as mid brain and forms a cavity called cerebral aqueduct.

3. RHOMBENCEPHALON

It is otherwise called as Hind brain which forms a cavity called IV ventricle. The rhombencephalon divided into metencephalon and myelencephalon which becomes (I) Cerebellum (ii) pons and medulla oblongata consequently.

4. NEURAL TUBE

It becomes spinal cord and forms a cavity called central canal of spinal cord.

PARTS OF THE BRAIN

The brain is made up of

A pair of Cerebral hemispheres

A pair of Cerebellar hemispheres

Mid brain

pons

Medulla oblongata

The nuclei of the oculomotor and trochlear nerves are situated, in the mid brain. The nuclei of the trigeminal, abducent, facial and a part of vestibulo cochlear nerve are found in the pons. A part of the nucleus of vestibulo cochlear nerve, nucleus of glossopharyngeal, vagus, accessory and hypoglossal nerves are found in the medulla oblongata.

The brain and the spinal cord are covered by meninges. The meninges has three layers

| | | |
|-----------|---|------------------|
| Duramater | - | Innermost layer |
| Arachnoid | - | Middle layer |
| Piamater | - | Outer most Layer |

The duramater covering the brain has two layers. Here and there venous sinuses are situated between these two layers. Venous sinuses are connected with veins of the scalp and the veins of the face via emissary veins. So infection from these areas spread to the brain via emissory veins. The subarachnoid space contains cerebro spinal fluid, which is diagnostic important for the diseases of the brain of meninges.

ANATOMY OF THE BRAIN

CEREBRUM

The cerebral hemispheres are two in numbers. They are separated by median longitudinal fissure. They are united by corpus callosum. The falx cerebri is a fold of duramater separates the two cerebral hemispheres. Each hemisphere is having three borders, three poles and three surfaces. The borders are superomedial, inferomedial and inferolateral border. The surfaces are superolateral, medial and inferior surfaces. The surfaces of hemisphere have elevations and depressions. Elevations are gyri and depressions are sulci.

LOBULATIONS

The cerebrum has four lobes frontal, parietal, temporal and occipital.

i. Frontal Lobe

It is bounded anteriorly by frontal pole, posteriorly by central sulcus, superiorly superomedial border, inferiorly inferolateral border and posterior ramus of lateral sulcus. The frontal lobes has got

Pre central gyrus (Broadman's area No. IV)

Superior frontal gyrus.

Middle frontal gyrus.

Inferior frontal gyrus.

The basic functions of the frontal cortex are

Motor function of the opposite half of the body

Motor speech function

Personality, behavior and intelligence

Frontal eye field.

Frontal lobe calculates the future life. so it has hindsight, insight and foresight.

TEMPORAL LOBE

From the posterior ramus of lateral sulcus a line is drawn to the imaginary line between the parieto occipital sulcus and pre occipital notch. This line separates the “Temporal Lobe”.

In the temporal lobe there are superior temporal sulcus and inferior temporal sulcus. So the temporal lobe is divided into (i) superior temporal gyrus (ii) middle temporal gyrus (iii) Inferior temporal gyrus. In the middle of the superior temporal gyrus the “Auditory area” is situated. Just above the auditory area in the frontal lobe there are motor speech area and area for the larynx. A pathological lesion around these areas causing “Deaf Mutism”.

The temporal pole turned inwards to become uncus. The uncus will be having “Smell function”. In certain conditions of convulsions the patient first feels a new smell sensation following that the development of convulsions or fits. This is called uncinate fits.

PARIETAL LOBE

Anteriorly bounded by central sulcus, posteriorly imaginary line between parieto occipital sulcus and preoccipital notch, superiorly supero medial border, inferiorly posterior ramus of the lateral sulcus and line drawn backwards.

Parietal lobes is situated posterior to the central sulcus. Behind central sulcus posterior central gyrus is seen. The posterior central gyrus is the sensory area of the opposite half of the body. (The Brodman's are 1, 2, 3). The posterior central gyrus receives almost all sensation except visual and auditory. The touch, pressure, temperature, pain etc are received by the posterior central gyrus. Intra parietal sulcus divides the parietal lobes into superior parietal lobules and inferior parietal lobule. The posterior ramus of the lateral sulcus, the superior temporal sulcus and inferior temporal sulcus are passing into the inferior parietal lobule. Memory is the chief function of the superior parietal lobule. Stereognostic function is the chief function of the inferior parietal lobule.

OCCIPITAL LOBE

5cm in front of the occipital pole in the superior medial border, parieto occipital sulcus is situated. 5 cm in front of the occipital pole in the infero lateral border pre-occipital notch is situated. An imaginary line is drawn on parieto occipital sulcus and pre-occipital notch. This line will separate the occipital lobe. On the lateral surface of the occipital lobe there is transverse occipital sulcus. Behind that lunate sulcus is situated. The visual areas i.e., visuuo-sensory and visuuo-psychic (area 17, 18, 19) are situated here. The parieto occipital sulcus is surrounded by a gyrus called Arcus parieto occipitals.

BLOOD SUPPLY

The brain is requiring continuous supply of the blood for its normal biochemical activity. Stoppage of blood for few seconds will damage the brain substances permanently. The vascular supply is by means of the circle of willi's (the polygon of willi's) This arterial circle is situated in the subsrachnoid space of the peduncular fossa.

FORMATION OF CIRCLE OF WILLI'S

Circle of willi's is formed by the combination of vertebral system and carotid system.

1. A pair of vertebral artery unit at the lower border of the pons to form basillar artery.
2. The basillar artery is ultimately dividing into a pair of posterior cerebral artery.
3. The penultimate branches formed from basillar artery are superior cerebellar artery.
4. Internal carotid arteries lateral to the optic chiasma gives anterior cerebral artery and continuous as middle cerebral artery.
5. The posterior communication artery is branch of internal carotid joins posterior cerebral artery.

Three pairs of arteries supply the cerebrum

1. Anterior cerebral artery.
2. Posterior cerebral artery.
3. Middle cerebral artery.

The arteries that supply superior lateral surface are

1. Middle cerebral artery.
2. Anterior cerebral artery.
3. Posterior cerebral artery.

Functionally middle cerebral artery supplies

1. Motor area of the opposite half of the body except leg and perineum.
2. Auditory area
3. Motor speech area.
4. Area of the frontal lobe maintains personality behavior, intelligence and memory areas.

The anterior cerebral artery supplies the upper border in the supero lateral mainly motor and sensory cortex of the leg and perineum.

TENTORAL SURFACE

Uncus is supplied by middle cerebral artery. The rest of the tentorial surface is supplied by posterior cerebral artery that supplies visual area.

The middle cerebral artery gives Lenticulo striate artery or artery of cerebral haemorrhage or artery of charcot. This artery pierces inside the lateral sulcus. It traverses (i) claustrum (ii) external capsule (iii) Lenticular nucleus (iv) internal capsule (v) thalamus. This artery supplies the lenticular nucleus, caudate nucleus and thalamus.

Anterior cerebral artery supplies medial surface of the cerebrum above the corpus callosum, upto the parieto occipital sulcus so paracentral lobule is supplied by anterior cerebral artery. Anterior cerebral artery controls the functions of the defaecation, micturition and parturition. Abnormally there may be an unpaired anterior cerebral artery. Obstruction of this artery is a common cause for paraplegia.

CORTICO SPINAL TRACT

The cerebral cortex has nerve cells called “Betz” cells. The largest cells of these nerve cells pass downwards into the cerebrum to form the “corona radiata”. The corona radiata descends between caudate nucleus and thalamus on the medial side, lentiform nucleus on the lateral side. Now it is called “internal capsule”. The internal capsule descends into mid brain, it thus passes down in the pons and medulla oblongata. In the medulla oblongata rest of the fibers cross and to the opposite side to form lateral cortico spinal tract. The fibres that do not cross descend on the same side to form anterior cortico spinal tract. The fibres of the lateral cortico tract pass into the ventral ramus of the spinal nerves to supply muscles.

INTERNAL CAPSULE

This is a compact layer of white matter within the cerebral hemisphere. It is the downward continuation of “corona radiata”. It is situated internally bounded medially by caudate nucleus and thalamus laterally by lentiform nucleus.

Frontoponto fibres originate from the frontal cortex, pass through the anterior limb of external capsule. It descends into medial 1 / 5th of the cerebral peduncle. It enters the pons, it crosses to the opposite side, it synapses with the nuclei points. From the nuclei points fresh fibers arise and go to the cerebellum. So these fibres may be better called as front to ponto cerebellar fibres.

“Genu” is a bend of the internal capsule. It is situated between anterior limb. It mainly contains.

1. Cortico nuclear tract
2. A part of superior thalamic radiation. The cortico nuclear tract is extending from the motor cerebral cortex to the motor cranial nerve nuclei 3rd, 4th, 6th a part of 5th, 7th a part of 9th, 10th, 11th and 12th mainly to the opposite side.

The nucleus of the facial nerve receives cortico nuclear tract from both cerebral hemispheres. So if one cerebral hemisphere is affected, the upper half of the face will not be paralyzed, because it is supplied by opposite cortico nuclear tract.

The cortico cerebral fibres formed from the motor cortex, they pass through the posterior limb of internal capsule and enter the red nucleus of mid brain. They belong to extra pyramidal system. Pathology of this tract cause “parkinsonism” disease.

Injuries involving the mid brain affecting cortico spinal tract and oculomotor nerve is called weber’s syndrome. In this hemiplegia of the opposite side oculomotor nerve paralysis of the same side. (Eyeball is deviated laterally).

Injuries involving cortico spinal tract, red nucleus, oculomotor, nerve is called benedict’s syndrome. In this (1) hemiplegia of opposite side (2) oculomotor paralysis of the same side (3) Tremors or parkinsonism disorders on the same side.

The internal capsule which vascular supply is divided into upper half and lower half.

1. The upper half is supplied by direct branches of the middle cerebral artery like lenticulo striate artery or artery of charcot or the artery of cerebral hemorrhage.

The lower half of the internal capsule is supplied by

1. Anterior cerebral artery (Artery of Hubanar).
2. Posterior communicating artery.
3. Choroidal artery.

The injury to lenticulo striate artery cause commonest type of cerebral hemorrhage.

Corpus callosum is a median band of white matter connecting both cerebral hemispheres, it is a mammalian feature. It is situated in the floor of the median longitudinal fissure having “C” shaped callosal syndrome is due to pathological lesions in the corpus callosum i.e., inability to match or identify anything kept in the left hand.

VENTRICLES

There are two lateral ventricles, III ventricle and IC ventricle. III ventricle communicates with IV ventricle via cerebral aqueduct. IV ventricle communicates with subarachnoid space communicating with sagittal sinus via arachnoid villi and granulations septum pellucidum separates both lateral ventricles.

CEREBELLUM

It is situated in the posterior cranial fossa. It is made up of two hemispheres united by vermis. Cerebellum is found dorsal to pons, medulla and. IV ventricle. Cerebellum is connected to the other parts of nervous system through the peduncles connect the mid brain and cerebellum.

BLOOD SUPPLY

Vascular supply through

1. Superior cerebellar artery
2. Anterior inferior cerebellar artery
3. Posterior inferior cerebellar artery.

Cerebellum may be damaged in alcoholics or drug, head injuries. So the functions of the cerebellum are lost in the affected side due to cerebellar paralysis.

- i. Titubation (shaky movements of the head)
- ii. Irregularly halting during speech i.e, cerebellar dysarthria
- iii. Shaky movements of the hands and foot
- iv. Not able to fix the vision to the object, vertigo, headache, vomiting. etc.,

EXTRA PYRAMIDAL SYSTEM (Basal ganglion)

The consists of basal ganaglia and their connections.

THE BASAL GANGLIA

The basal ganglia are group of nuclei situated deep within the substance of the cerebral hemispheres and brainstem, and include the caudate nucleus, putamen, globus pallidus (or pallidum), the claustrum, subthalamic nucleus, and substantia nigra.

The putamen and pallidum together form the lentiform nucleus.

The caudate, putamen, and pallidum nuclei are collectively referred to as corpus striatum. The corpus striatum plays an important role in the regulation of posture.

Phylogenetically, the pallidum (paleostriatum) is older than the caudate nucleus and putamen (neostriatum).

The globus pallidus (pallidum) is the final efferent cell station of the basal ganglia, its activity being influenced by inputs from the cortex, striatum, substantia nigra, and subthalamic nucleus. The principal efferent pathway from the pallidum passes rostrally via the ventrolateral nucleus of the thalamus and caudally via the subthalamic and red nuclei. It plays a vital role in initiating movement.

The Principal Connections of the Basal Ganglia

1. From the cerebral cortex to the striatum and from there to the pallidum. From the pallidum fibres pass to the thalamus (nucleus ventralis anterior and nucleus ventralis lateralis) and from here back to the motor cortex.
2. Efferent pathways connect the pallidum with the subthalamic nucleus and substantia nigra.
3. A pathway exists from the substantia nigra to the striatum.

Signs of Extrapyrarnidal Lesions

| Sign | Site of lesion |
|---------------------|--|
| Resting tremor | Substantia nigra, red nucleus |
| Muscular rigidity | Substantia nigra, putamen |
| Hypokinesia | Substantia nigra, globus pallidus, putamen |
| Chorea | Caudate nucleus |
| Hemiballismus | Subthalamic nucleus |
| Dystonia, athetosis | Putamen |

MID BRAIN

It is embryologically developed from the mesencephalon. It has got the nuclei of the oculomotor and trochlear nerve. It is situated in the posterior cranial fossa. In the lower part of the mid brain, nucleus of the trochlear nerve persists into tegmentum. It runs dorsally and it decussates, emerges on the dorsal surface of mid brain. It is the only cranial nerve emerging from the dorsal surface of brain.

PONS

It is situated between medulla oblongata and mid brain. It is ventral to the IV ventricle. In the ventral surface of the pons there is a midline sulcus called basillar sulcus. This sulcus lodges basillar artery either sides of basillar sulcus elevation caused by cortico spinal tract. Pinpoint pupil, fever, headache, and hemiplegia of the opposite side should be diagnosed as hemiplegia due to pontoin haemorrhage.

MEDULLA OBLONGATA

It extends from the lower border of the pons to the upper border of the atlas and it is continued downwards in the spinal cord.

1. Between the pyramid and the pons 'Abducent nerve' emerges.
2. Between the olive and the pons 'Facial nerve' emerges.
3. Between pyramid and olive "IXth Xth XIth" cranial nerves emerges out of medulla.

VASCULAR SUPPLY

Medulla oblongata has vascular supply by

1. Vertebral artery
2. Anterior spinal artery
3. Posterior spinal artery
4. Posterio inferior cerebellar artery

Obstruction of the posterio inferior cerebellar artery cause lateral medullary syndrome. So the patient has symptoms of paralysis of medulla, oblongata and its cranial nerves with cerebellar paralysis.

APPLIED PHYSIOLOGICAL ANATOMY OF THE NERVOUS SYSTEM

The central nervous system consists of vast numbers of neurons, both afferent and efferent. A neuron is a nerve cell with its dendrites and axon. The nerve cells are found in the gray mater of the cortex, basal ganglion and nuclei. The central gray mater of the spinal cord and in posterior root ganglion. The axons are collected into bundles or tracts and run mostly in the white mater and peripheral nerves. The nerves impulse travels at

different rates in different nerves. A synapse or junction between two neurons will allow an impulse to pass one direction only. At the synapse a chemical change occurs acetyl choline may be released. In central synapses by the passage of the impulse and is split by an enzyme cholinesterase. This effect is also observed at the end organs of many peripheral neurons (e.g) neuromuscular junction. Not all central synapses however are cholinergic, the mediator in non-cholinergic synapses is not known.

The brain is provided with a number of enzymes, which serve its metabolism. Some of these regulate the supply of glucose to brain cells by oxidizing carbohydrate.

Carbohydrate is broken down to pyruvic acid, before being oxidized to CO_2 and H_2O by a second path pyruvic acid is not an intermediary product of carbohydrate breakdown. An absence of aneurine (which acts as a catalyst) from the diet will lead to accumulation of pyruvates in the blood and CSF. In brain cell metabolism protein and amino acids seem to be less important although recent work suggests that glutamic acid (an amino acid) plays an important role.

The disease **Pakka Vatham** in Siddha literatures correlates with **cerebro vascular accident - Stroke Syndrome** of central nervous system. Cerebro Vascular accident is the first and foremost among the disorders of CNS.

It is the third commonest cause of morbidity and mortality. Now a days strokes are common in elderly patients at the age of 50-60 and even younger individuals below and around the age of 40 are also affected.

General Considerations

Disorders of the central nervous system secondary to pathological processes involving the blood vessels are very common above the fifth decade of life. Any sudden, non-convulsive focal neurological deficit can be referred to as "stroke". Vascular disorders are characterized generally by their abrupt onset. Strokes are broadly divided into ischemic and hemorrhagic lesions. When the supply of oxygen and glucose to the brain is interfered with, ischemic necrosis and infarction develops. Obstruction of an artery may be either by a thrombus or an embolus. Sometimes gross impairment of the cerebral circulation may result from hypotension produced by cardiac failure or shock and this may also lead to cerebral ischemia. When the mean arterial blood pressure falls

below 60 mmHg the cerebral blood flow depends upon the gradient between the mean arterial blood pressure and intracranial pressure.

Stroke in Indian Scenario

Strokes are common in India. Though it is predominantly a disease beyond the age of 50 years strokes in the young occurring below the age of 40 years is not uncommon. Before the advent of CT scan, it was thought that 75% of strokes are ischemic and the rest hemorrhagic. Now it is realised that several pathological processes can lead to stroke. The etiology differs in the different age groups.

Causes of Stroke in Persons above the Age of 50 years

Atherosclerosis of the cerebral arteries; This accounts for the majority of cases, lesions may be in the intracranial portions of the arteries, particularly the striate branches of the middle cerebral artery and perforating branches of the basilar artery, or in the cervical portions of the internal Carotid and vertebral arteries. Atherosclerosis may be complicated by thrombosis, embolisation of subintimal plaques or haemorrhage. Platelet aggregates and atheromatous emboli arising from the carotid bifurcation are common causes of transient ischemic attacks (TIA) and further cerebral infarction. Cardiovascular sources of emboli account for a good number of ischemic strokes in elderly subjects.

All epidemiological study conducted by the Indian Council of Medical Research (ICMR) in 1986 revealed that the main risk factors are hypertension, tobacco smoking and low hemoglobin levels. The combination of hypertension and tobacco smoking increased the risk of stroke twenty times. Increase in the systolic and diastolic pressures correlate with the risk. Carotid and vertebral artery atherosclerosis is associated with hypercholesterolemia. In many of them atherosclerosis of the coronary and peripheral arteries also occurs. Other known risk factors are diabetes mellitus, dyslipidemias, obesity, polycythemia and use of oral contraceptive drugs.

Causes of Stroke in the Young

Nonspecific aortic arteritis which is common in India accounts for many cases. Endarteritis occurring in syphilis, meningitis, brain abscess and other infective conditions may be complicated by arterial thrombosis and cerebral infarction. Embolism complicating several cardiovascular diseases is a common cause.

CLASSIFICATION OF CEREBRO VASCULAR ACCIDENT

TIA - Transient Ischemic Attacks

It is an acute loss of focal cerebral or monocular functions, with symptoms lasting less than 24 hours - due to embolic or thrombotic vascular disease.

CT and MRI evidence of infarction in an area relevant to the symptoms.

(ii) A stroke or CVA is rapidly developing clinical symptoms or signs of focal and at times global (for patient in deep coma and no more with sub arachnoid haemorrhage) loss of cerebral functions, with symptoms lasting more than 24 hours or leading to death, mostly is due to Vascular origin. A number of TIA's may precede a stroke.

RIA - RIND - Reversible Ischemic attack or Reversible Ischemic neurological deficit.

It includes TIA's with mild ischemic strokes with no persisting neurological disability but has functional relevance.

FACTS ABOUT STROKE

STROKE - INCIDENCE

| | | |
|--|---|-----|
| Due to cerebral infarction | - | 80% |
| Due to Primary intra cerebral bleed (PICH) | - | 10% |
| Due to Sub arachnoid Haemorrhage | - | 5% |
| Due to uncertain cause | - | 5% |

EPIDEMIOLOGY

The epidemiology lagged behind that of coronary heart disease due to

1. Less frequent than coronary events.
2. Diagnosis still being a largely a matter of clinical skill without the help of many or any confirmatory investigation being disorder of late middle age and elderly where other diseases frequently co exists.

MORTALITY RATE

The mortality depends up on nature of cerebro vascular disorders.

It is highest in cases of Primary Intracerebral haemorrhages, higher in cases of sub arachnoid haemorrhage.

The fatal rate in cerebral infarction is due to multiple infarct and due to extension of infarction.

The mortality also co-exists with other conditions such as coronary heart disease, related disability and complications such as Pneumonia.

PREVALANCE

About 5/1000 of population may suffer from stroke, prevalence increases with age.

Males are prove to suffer from stroke man female at a higher incidence.

GEOGRAPHICAL DISTRIBUTIONS

Japan stroke is due to primary intra cerebral bleed.

India : Younger, population suffer from stroke duo to intra cerebral venous thrombosis than arterial occlusion.

South Asia : Stroke is prevalent and associated with high prevalence of coronary heart disease, obesity and Insulin resistant states.

Racial distribution : Blacks are affected more than white population.

Seasonal and diurnal variations : Incidence and mortality are high in winter due to effect of temperature, high B.P. and atmospheric pollution, chance of complications such a pneumonia.

DIURNAL VARIATION

- | | |
|------------------------------------|--|
| Cerebral infarction | - early hours of morning |
| Sub-arachnoid Haemorrhage | - during sleep |
| Primary Intra cerebral Haemorrhage | - during at a height strenuous activity. |

RISK FACTORS FOR ISCHEMIC STROKE

Factors associated with an increased risk of Vascular disease Risk factors for cerebral infarction

age
male sex
blood pressure
smoking
blood lipids
diabetes mellitus
plasma fibrinogen
factor VII coagulant activity
oral contraceptives
haematocrit*
alcohol
Obesity and diet
race
snoring*
corneal arcus*
psychological factors*
hyperhomocystinaemia*
social deprivation
white blood cell count*
vasectomy*
serum albumin*

diagonal earlobe crease
physical inactivity
impaired ventilatory function
maternal history of stroke

Evidence of existing vascular disease

myocardial infarction /angina
cardiac failure
heart rate*
left ventricular hypertrophy
Atrial fibrillation
peripheral vascular disease
cervical arterial bruit and stenosis
transient ischemic attacks

2. Vascular risk factors

Prevalence of vascular risk factors in stroke due to cerebral infarction.
Hypertension (BP>160/90 mm Hg × 2 pre-stroke
Angina and / or myocardial infarction
Current smokers*
Claudication and / or absent foot pulses
Major cardiac embolic source
Transient ischaemic attack
Cervical arterial bruit
Diabetes mellitus

For embolic stroke

Cardiac sources of embolism

Atrial fibrillation without rheumatic heart disease
Atrial fibrillation with rheumatic heart, disease
Any atrial fibrillation
Mitral incompetence
Recent myocardial infarction (6 weeks)

Prosthetic valve
 Mitral stenosis
 Paradoxical embolism
 Any of the above

Any minor potential cardiac source of embolisms in aortic stenosis / sclerosis, mitral annulus calcification, mitral leaflet prolapse, aortic incompetence, cardiomyopathy.

Genetic factors contributing stroke

1. Familial Causes

| | |
|-----------------------------|--|
| Vascular anomalies | Vascular malformation, Saccular aneurysm, Hereditary haemorrhagic, telangiectasia |
| Connective tissue anomalies | Ehlers-Danlos syndrome pseudoxanthoma elasticum, Marfan's syndrome, Polycystic kidney disease, mitral leaflet prolapse. |
| Haematological diseases | Haemophilia and other coagulation factor deficiencies, Sickle-cell disease trait, Antithrombin III deficiency, Protein C deficiency, Protein S deficiency. |
| Others | Familial hypercholesterolaemia Cerebral amyloid angiopathy (Icelandic fom) Neurofibromatosis Tuberous sclerosis Homocystinaemia Fabry's disease Migraine Cardiac myxoma Mitochondrial cytopathy mitral leaflet prolapse |

CAUSE OF STROKE

The following are causes of Cerebral ischemia and cerebral infarction due to Artherothromboembolism.

| | |
|--------------------------|--|
| Arterial wall disorders | Atherothromboembolism intracranial |
| | small vessel disease (lipohyalinosis, microatheroma) |
| | Trauma |
| | Dissection |
| | Fibromuscular dysplasia |
| | Congenital arterial anomalies |
| | Moyamoya syndrome |
| | Embolism from arterial aneurysms |
| | Inflammatory vascular diseases |
| | Binswanger's disease |
| | Irradiation |
| | Infections |
| | pregnancy / puerperium |
| Embolism from the heart | oral contraceptives and other female sex hormones |
| Haematological disorders | Drug abuse |
| Miscellaneous conditions | Cancer |
| | Migraine |
| | Inflammatory bowel disease |
| | Homocystinaemia |
| | Fabry's disease |
| | Mitochondrial cytopathy |
| | Hypercalcaemia |
| | Hypoglycaemia |
| | Fibrocartilaginous embolism |
| | Snake bite |
| | Fate embolism |
| | Epidermal naevus syndrome |
| | Nephrotic syndrome |

The relative importance of the causes of ischaemic stroke

| | |
|---|-----|
| Altherothromboembolism of cerebral arterial supply | 50% |
| Intracranial small vessel disease (lipohyalinosis / microatherma) | 25% |
| Embolism from the hear | 20% |
| Miscellaneous and rare disorders | 5% |

Causes of injury of the arteries supplying the brain

| | |
|---|--|
| Penetrating injury | Missile wounds |
| | Neck laceration |
| | Neck surgery |
| | Tonsillectomy |
| | Oral trauma |
| | Angiography |
| | Jugular vein cannulation |
| Non penetrating injury | Blow to the neck |
| | Carotid compression tests |
| | Attempted strangulation |
| | Neck injury (fracture, subluxation, dislocation) |
| | Sudden neck movements (whiplash, injury) |
| | head banging ceiling |
| | painting, head injury head, |
| | turning, minor falls) |
| | Neck manipulation |
| | Atlanto axial dislocation |
| | Occipito-atlantal instability |
| | Fractured base of skull |
| Inflammatory vascular disease, contributing stroke. | cervical rib |
| | Fractured clavicle |
| | Giant-cell arteritis |
| | Takayasu's disease |
| | Systemic lupus erythematosus |

- Systemic vasculitis
- Rheumatoid disease
- Sjogren's syndrome
- Behce's disease
- Relapsing polychondritis
- Progressive systemic sclerosis
- Sarcoid angitis
- Isolated angitis of the central nervous system
- Malignant atrophic papuhsis
- Buerger's disease

Haematological Disorders causing stroke

- Polycythaemias
- Essential thrombocythaemia
- Leukaemia
- Sickle-cell disease/ trait
- Iron deficiency anemia
- Paraproteinaemias
- Paroxysmal nocturnal haemoglobinuria
- Thrombotic thrombocytopenic purpura
- Disseminated intravascular coagulation
- Hypercoagulability

HAEMORRHAGIC STROKE

Causes of Haemorrhagic stroke

- | | | |
|------------------------------|---|------------------------------|
| 1. Within subarachnoid space | - | Sub arachnoid space |
| 2. Within brain | - | Primary intra cerebral bleed |
| 3. Within ventricles | - | ventricular haemorrhages |
| 4. Within Sub dural space | - | Sub dural haemorrhages |
- Hypertension (chronic, acute)
- Aneurysms
- Saccular
 - atheromatous

- mycotic
- myxomatous
- dissecting

Vascular malformations

- arteriovenous
- venous
- cavernous
- telangiectasias

Cerebral amyloid angiopathy

Vascular tumours contributing haemorrhage

- melanoma
- choriocarcinoma,
- malignant astrocytoma
- oligodendroglioma
- medulloblastoma
- haemangioblastoma
- choroid plexus papilloma
- hypernephroma
- endometrial carcinoma
- bronchogenic carcinoma

Drug abuse

Infections

- herpes simplex
- syphilis
- anthrax

Scorpion bite

Causes of Primary Intra Cerebral Haemorrhage

- More common than Sub-arachnoid haemorrhage due to
 - Hypertension
 - Vascular disease.
 - Vascular malformation
 - Saccular aneurysm

may be due to haemostatic effects due to anti-coagulant therapy therapeutic thrombolysis, Anti platelet drugs

Site of Haemorrhages

In Hypertensives, Haemorrhages may occur in Basal ganglia Thalamus and pons.

Lobar Haemorrhages are due to Vascular malformation, aneurysms haemostatic failure.

Specific causes of Intra cranial haemorrhages

Chronic hypertension

Aneurysms.

Aneurysms may associate with polycystic kidney disease.

Fibro muscular dysplasia, co-arcuation of aorta, A-V malformation

Investigations in case of Stroke

| investigation | Disorders detected |
|--------------------|--|
| Pull blood count | Anaemia, polycythemia, leukaemia, thrombocythaemia |
| ESR | Vasculitis, infective endocarditis, hyperviscosity |
| Plasma glucose | Diabetes, hypoglycaemia |
| Plasma cholesterol | Hypercholesterolaemia |
| Syphilis serology | Syphilis, anticardiolipin antibody |
| Urine analysis | Diabetes, renal disease |
| Electrocardiogram | Left ventricular hypertrophy, arrhythmia, conduction block, myocardial ischaemia or infarction |

Non-routine investigations in TIA and ischaemic stroke patients

| Investigation | disorders detected |
|----------------------|---|
| Electrolytes | Hyponatraemia or hypokalaemia (if on diuretics) |
| Urea | Renal impairment (if hypertensive) |

| | |
|---|---|
| Thyroid function | Thyrotoxicosis (if in atrial fibrillation) |
| Chest X-ray | Enlarged heart, calcified valve, pulmonary arteriovenous malformation |
| Cranial CT/MRI | Haemorrhage or infarct, structural lesion |
| Carotid ultrasound | Carotid stenosis |
| Echocardiography | Cardiac source of embolism |
| 24 hours ECG | Cardiac arrhythmia |
| Activated thromboplastin time, anticardiolipin antibody, dilute | Antiphospholipid antibody syndrome |
| Antinuclear antibodies | Russell viper venom time. |
| Serum proteins, electrophoresis | Systemic lupus erythematosus |
| Haemoglobin electrophoresis | Myeloma |
| EEG | Sickle cell trait / disease |
| Protein C, protein S | Epileptic seizures |
| Antithrombin III | Deficiency |
| Plasma / urine amino acids | Homocystinaemia |
| Cerebrospinal fluid | Neurosyphilis, multiple sclerosis |
| | Neurosyphilis, multiple sclerosis, infective endocarditis |
| Temporal artery biopsy | Giant cell arteritis |
| Blood cultures | Infective endocarditis |
| Cardiac enzymes | Acute myocardial infarction |

Complications

Systemic complications of acute stroke

- Pneumonia
- Venous thromboembolism
- Urinary tract infection
- Pressure sores
- Cardiac arrhythmias, failure, myocardial infarction
- Fluid imbalance, hyponatremia
- Mechanical hyponatremia
- spasticity
- contractures

malalignment / subluxation / frozen shoulder
falls and fractures
osteoporosis
ankle swelling
pressure palsies
Mood disorders
Seizures
Gastric stress ulceration

Intracranial venous thrombosis

It is necessary to know that about intracranial venous thrombosis which also contributes Neurological Deficit Seldom like a Stroke.

Causes of intracranial venous thrombosis

Local conditions affecting the cerebral veins and sinuses directly
head injury (with or without fracture)
intracranial surgery
local sepsis (sinuses, ears, mastoids, scalp, nasopharynx)
Subdural empyema
bacterial meningitis
meningovascular syphilis
dural and cerebral arteriovenous malformations
tumour invasion of dural sinus (malignant meningitis, skull base secondary, etc.)
catheterisation of jugular vein

Systemic disorders

dehydration, hypernatraemia
septicaemia
pregnancy and the puerperium
oral contraceptives
haematological disorders

INVESTIGATIONS OF MOTOR FUNCTIONS

A patient who can walk and move his upperlimbs freely, is not suffering from any gross paralysis. Investigation for paralysis of weakness of different groups of muscles should be made, when necessary. The degree of co-ordination of muscular action is next determined. The patient is asked,

1. To Extend his arm and then to bring his forefinger to the tip of his nose keeping his eyes closed, in the presence of in co-ordination, he will not be able to do this.
2. Walking along a straight line is difficult if there is in co-ordination.
3. Rapid movements of pronation and supination of the forearm with the elbow at a right angle are either not possible or slow in cases of cerebellar lesions.
4. The patient is asked to stand with his feet close together. He stretches out his arms and then close his eyes. If he sways then Romberg's sign is positive.

Gait

Gait of a patient is observed on the following points

1. Ask him to walk normally and then study
2. Ask him to walk on a straight line
3. In case of any deviation note the side
4. In case of fall note the side
5. Whether he has any of the typical gaits

For the investigation of motor system, the involuntary movements and their clinical types are studied.

INVESTIGATIONS OF SENSORY FUNCTIONS

(A) SUPERFICIAL SENSATION

1. Touch: Tested by a cotton wool touched lightly to the skin it is either normal, hypoaesthesia or hyperaesthesia
2. Temperature: Hot and cold sensations are tested, separately.
3. Dissociated anaesthesia : Loss of pain and temperature Sensation with preservations of touch.
4. Tactile extinction: Two stimuli applied on two identical points of body on either side of body shows the affected side failing to appreciate touch.
5. Graphaesthesia: Patients eyes closed. Figures drawn by a blunt point on skin should be recognised by patient normally.

b) Deep Sensation

1. Joint sense : with eyes closed and patient in relaxed state, his toe or thumb is passively moved up and down at the terminal joint and he is asked to recognise position. Involved in posterior column disease.
2. Sense of position and passive movement: Patient's eyes closed, his any extremity is moved and kept in a particular position, and he is asked to repeat the same with the other limb involved in the lesions of sensory motor cortex.
3. Deep pressure pain.
4. Vibration sense is tested against any bony prominence involved in disease of the posterior column.
5. Weight sense recognizing weight of two objects in two palms. The object has same shape but different weights.

Stereogenesis

Recognizing an object by feel only. Involved in lesions of post central gyrus, subcortical parietal region, thalamus, or the lower part of the medulla.

Reflexes

In lesion of the pyramidal system all deep tendon reflexes are exaggerated, sometimes so much that a clonus can be elicited.

The superficial or skin reflexes are diminished or absent or altered in plantar reflex.

Grading of the Reflexes

| | | |
|-------|---|--------------|
| Grade | : | 0 Absence |
| Grade | : | 1 Present |
| Grade | : | 2 Brisk |
| Grade | : | 3 Very Brisk |
| Grade | : | 4 Clonus |

Method

A. Biceps jerk :- (C₅ C₆)

Grasp the patient's elbow with the left hand so that the thumb rests on the biceps tendon. A tap on the examiner's thumb elicits contractions of the biceps.

B. Triceps jerk :- (C₆C₇ & C₈)

A tap just above the olecranon with the elbow flexed will bring about contraction of the triceps.

C. Knee jerk

The patient should sit with one knee crossed over the other or if he is unable to sit, the flexed knee is allowed to rest on the clinician's hand. Now a sharp blow on the ligament patellae with the edge of the hand or with a percussion hammer will elicit a brisk contraction of the quadriceps, the leg being extended with a jerk

D. Ankle jerk

The foot is dorsiflexed slightly so as to put the tendo achillis on the stretch. A gentle stroke on the back of the tendon leads to a momentary contraction of the calf muscles as evidenced by a sharp plantar flexion of the foot.

E. Ankle Clonus

The Patient's knee is slightly flexed and the leg is supported with one hand, while the other hand over the sole of the fore foot makes sudden dorsi flexion of the foot. The foot will be set oscillating if slight pressure on the sole is maintained, this is pathognomonic of lesions of pyramidal system.

F. Plantar Reflex (L₅- S₁)

The inner or the outer border of foot is scratched with a pin. Normally the great toe is flexed, but in the lesions of the pyramidal tract and in infants (in whom the tract is not yet myelinated) the great toe will be extended. (Babinski's sign)

G. Cremastric Reflex (L₁)

This is elicited by scratching the skin at the upper and inner part of the thigh when the testis will be drawn upwards.

H. Abdominal Reflexes

These are elicited by stroking the abdominal muscles. These reflexes are abolished in lesions of the pyramidal tract.

The Cornel reflex

Use a wisp of cotton. The patient looks to oneside. The examiner comes from the other side. Touches the cornea at its junction with the sclera. Look for blinking on the same side and on the opposite side.

Deep tendon reflexes

| Reflex | Nerve | Mode of elicitation | Response |
|----------------------|------------------|---|--|
| Biceps C 5-6 | Musculo | Blow upon the biceps tendon | Flexion of the elbow |
| Supinator C 5-6 | Radial | Blow upon the tendon of brachioradialis at the distal end of the radius | Flexion of the forearm with supination |
| Triceps C 7-8 | Radial | Blow upon the tricep tendon | Extension of the arm |
| Finger flexion C 7-8 | Median and ulnar | Blow upon the quadriceps tendon | Extension of the knee |
| Knee L 2-4 | Femorial | Blow upon the quadrices tendon | Extension of the knee |
| Ankle S 1-2 | Sciatic | Blow upon the tendo-calcaneous | Plantar flexion of the ankle |

Gradation of muscle power

| | | |
|-------|---|---|
| Grade | : | 0 Complete paralysis |
| Grade | : | 1 Flicker of contraction |
| Grade | : | 2 Contraction with gravity eliminated |
| Grade | : | 3 Contraction against gravity alone |
| Grade | : | 4 Contradiction against gravity and some resistance |
| Grade | : | 5 Contraction against powerful (normal power) resistance. |

Co ordination of the Limbs

In Upperlimbs

A. The Finger nose test

1. Patient holds the arm outstretched and abducted to 90° at the shoulder.
2. He touches the tip of his nose with the tip of his index finger.
3. The finger is held on to the nose.

In lower limbs

The Heel Knee test

1. One heel is held on the opposite knee.
2. The heel is slid accurately down the front of the shin to the ankle and back again.

In sensory ataxia, this in co-ordination worsens with the eyes closed. In cerebellar ataxia, there will be no difference. Note the smoothness of the movement, steadiness of the limbs and the ease with which the test is performed.

MATERIALS AND METHODS

SELECTION OF CASES

The clinical study on “Pakkavaadham” was done by the author in the Post-Graduate Department of Sirappu maruthuvam at Governement Siddha Medical College Hospital, Palayamkottai from March-2007 To - March 2008. Accordingly Twenty Four patients out of both sexes and varying age groups were selected twenty patients in the P.G Department of sirappu maruthuvam under the supervision of Professor and Lecturer and treated in In-Patient ward for study. Another twenty five patients also treated with the trial drug in the Out-Patient ward.

All the cases were carefully and thoroughly examined at the time of admission. Besides an individual case sheet was maintained for each patient in the In-Patient ward. All the patients were advised to come to the Out-Patient ward for further follow-up.

EVALUATION OF CLINICAL PARAMETERS :

During admission the patients were subjected to careful history taking. The clinical symptoms,

1. Inability to use the one half of the body.
2. Muscle wasting in the affected side
3. Dystrophy due to disuse.
4. Heaviness of the limbs in the affected side.
5. Mental depression
6. Giddiness
7. Excess thirst
8. Dryness of lips and tongue
9. Recurrent cram press
10. Burning sensation of the eyes.
11. Tingling sensation over the affected area
12. Difficulty in speaking
13. Constipation were also taken as criteria for the selection of patients.

The history had been collected from the patients about.

1. Occupation
2. Diet habits
3. Personal habits
4. Family history
5. Socio-economic status
6. Physiological condition
7. Exposure to cold
8. Infective diseases,
9. Trauma
10. Hereditary Diseases
11. Metabolic disorders (Diabetes mellitus etc.,)

MODE OF DIAGNOSIS :

The diagnosis is made by the following siddha basic principles.

- 1. epyk;**
- 2. gUtf;fhyk;**
- 3. njfepiy**
- 4. bghwpahy; mwpjy;**
- 5. g[ydhhy; mwpjy;**
- 6. tpdhjy;**
- 7. Kf;Fw;w epiy**
- 8. cly; jhJf;fs; epiy**
- 9. vz;tif njh;t[fs;**

And the diagnosis “Pakka Vaadham” was obtained which correlates with the modern entity “Hemiplegia” by the physical examination of the patient and with the some patient CT scan and MRI reports.

CLINICAL LABORATORY INVESTIGATIONS :

The following investigations were also done to confirm the diagnosis and to follow the progress of the patient.

1. BLOOD TESTS

WBC - Total Count
Differential Count
Erythrocyte sedimentation Rate
Hemoglobin estimation
Blood sugar
Blood Urea
Lipid profile
Serum cholesterol
Bleeding time
Clotting time

2. URINE ANALYSIS

Albumin
Sugar
Deposits

3. MOTION TEST

Ova
Cyst

4. RADIOLOGICAL INVESTIGATION

X-RAY Chest PA View
Computerized Tomography - Brain (Plain)
Computerized Tomography - Brain (Contrast)
Magnitude resonance imaging
Electro Encephalo Gram
Angiogram

1. Incidence of Pakkavaatham - in patient

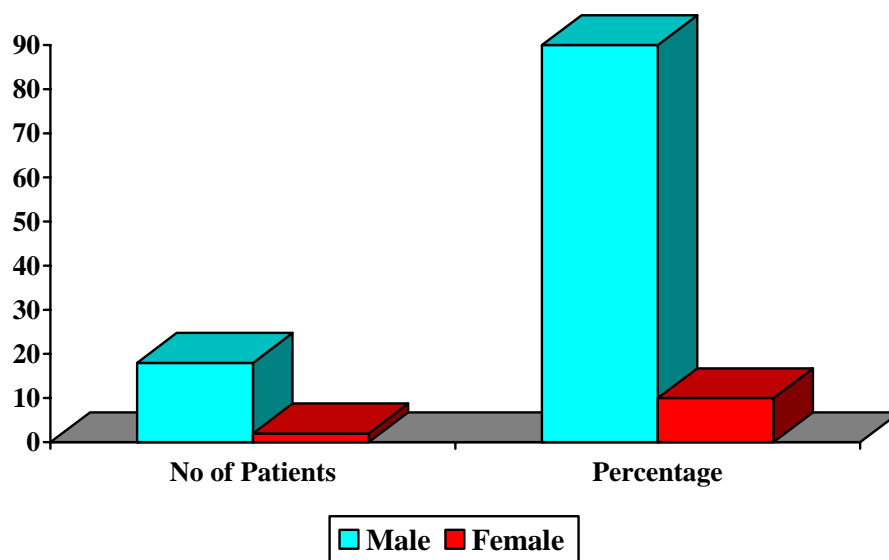
Among the twenty patients of varied etiology who were admitted in the In-Patient ward for study the incidence is Eighteen patients in males (90%) and two patients in females (10%)

In the Out-Patient ward, the incidence is 70% in males and 30% in females.

Table - 1

| S.No | Sex | No. of Patients (In In-Patient ward) | Percentage |
|------|--------|---|------------|
| 1 | Male | 18 | 90% |
| 2 | Female | 2 | 10% |

Incidence of Pakkavatham

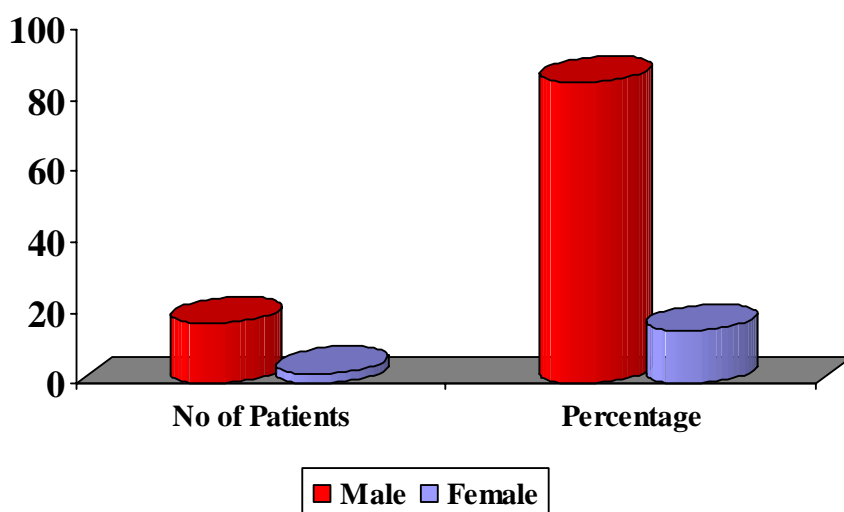


2. Incidence of Pakkavatham - out patient

Table - 2

| S.No | Sex | No. of Patients (In Out-Patient ward) | Percentage |
|------|--------|--|------------|
| 1 | Male | 17 | 85% |
| 2 | Female | 3 | 15% |

Out Patient ward



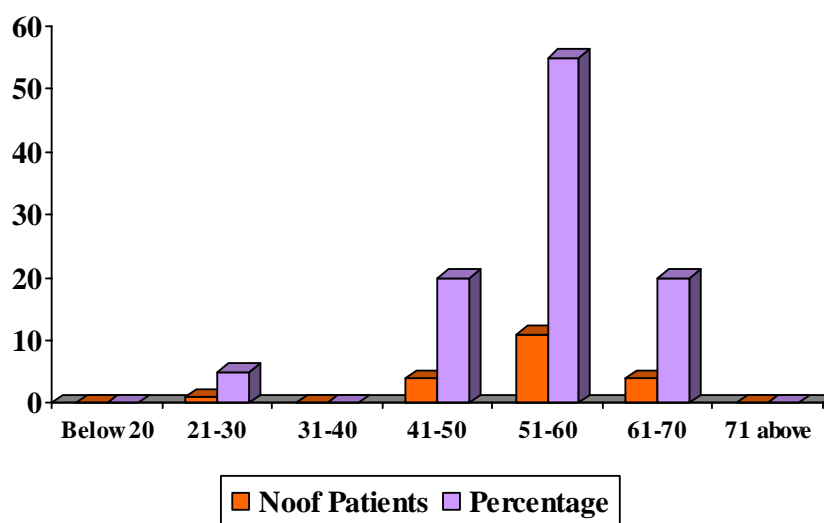
3. AGE INCIDENCE

Among the twenty patients the highest incidence was in the age group of 51-60 years (55%). One patient belonged to the age group of below 30 years (5%). Eleven patients to the age group of 51-60 years (55%) four patients to the age group of 61-70 years (20%). Four patients to the age group of 41-50 years (20%).

Table - 3

| S.No | Age (In Years) | No. of Patients | Percentage |
|-------------|---------------------------|------------------------|-------------------|
| 1 | Below 20 | - | - |
| 2 | 21- 30 | 1 | 5% |
| 3 | 31- 40 | - | - |
| 4 | 41- 50 | 4 | 20% |
| 5 | 51- 60 | 11 | 55% |
| 6 | 61- 70 | 4 | 20% |
| 7 | 71 and above | - | - |

Graph Illustrating the Reference to Age

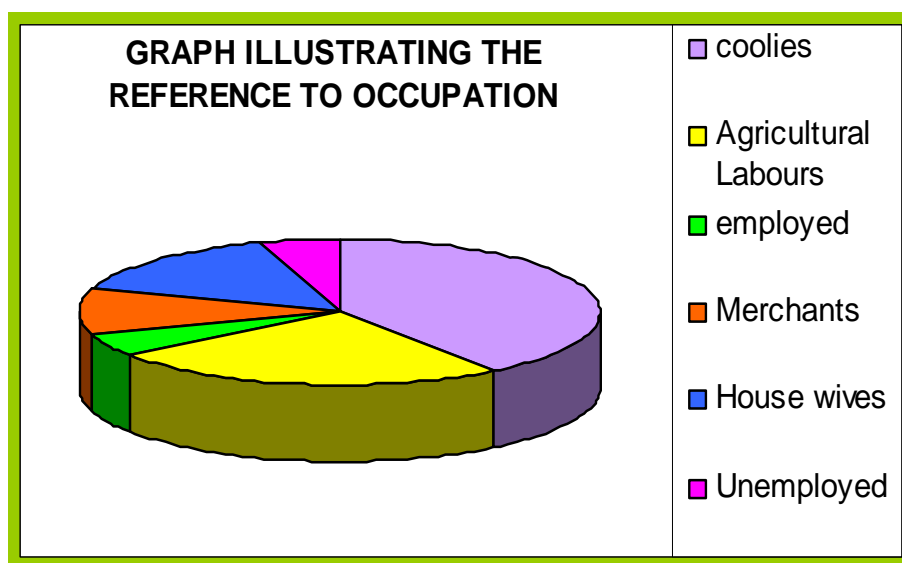


4. OCCUPATION

Eight male patients were coolies (40%), five agricultural labours (25%), one employed (5%), two merchants (10%), two house wife (15%) and one unemployed (5%) during incidence.

Table - 4

| S.No | Occupation | No. of Patients | Percentage |
|------|----------------------|-----------------|------------|
| 1 | Coolies | 8 | 40% |
| 2 | Agricultural Labours | 5 | 25% |
| 3 | Employed | 1 | 5 % |
| 4 | Merchants | 2 | 10 % |
| 5 | House wives | 3 | 15 % |
| 6 | Unemployed | 1 | 5 % |

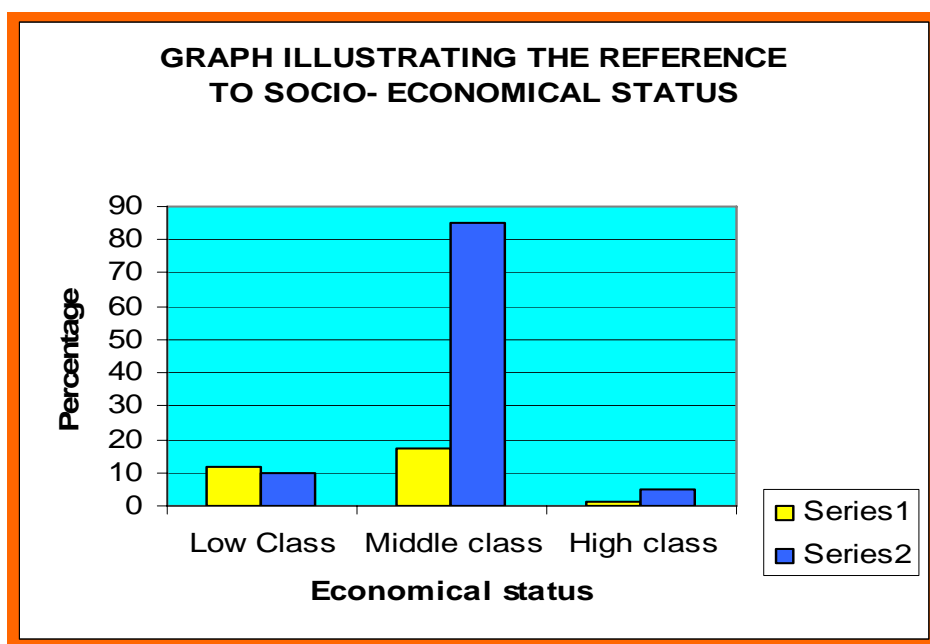


5. SOCIO - ECONOMICAL STATUS

The majority of the patients about seventeen belonged to economically middle class (85%), two patients belonged to low class (10%) and one patient belonged to the high class.

Table - 5

| S.No | Economical Status | No. of Patients | Percentage |
|------|-------------------|-----------------|------------|
| 1 | Low Class | 2 | 10% |
| 2 | Middle Class | 17 | 85% |
| 3 | High Class | 1 | 5% |

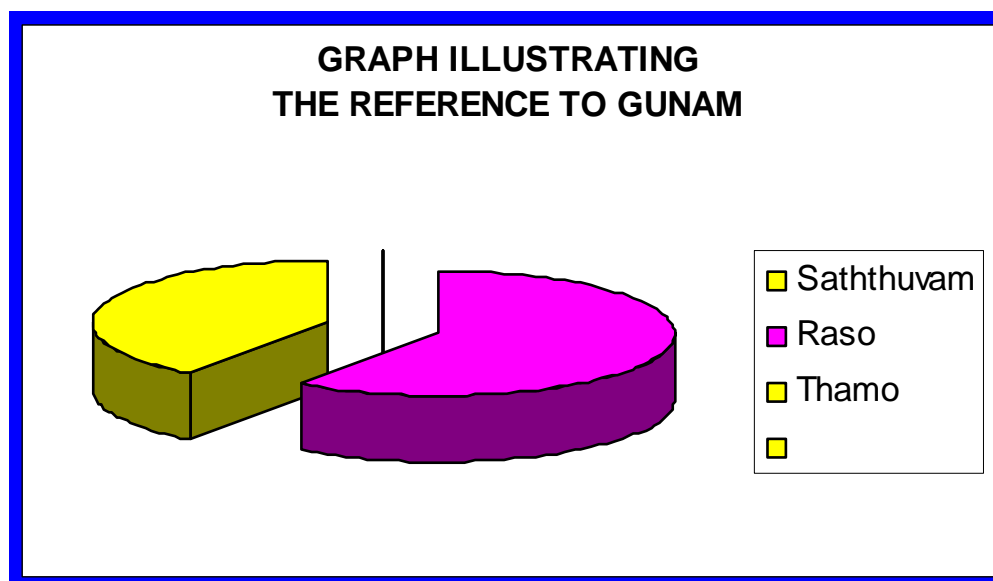


6. REFERENCE TO GUNAM

Twelve patients with Rajo gunam formed the highest incidence (60%) and remaining eight patients had Thamo gunam (40%)

Table - 6

| S.No | Gunam | No. of Patients | Percentage |
|------|------------------|-----------------|------------|
| 1 | Saththuvam Gunam | - | - |
| 2 | Raso Gunam | 12 | 60% |
| 3 | Thamo Gunam | 8 | 40 % |

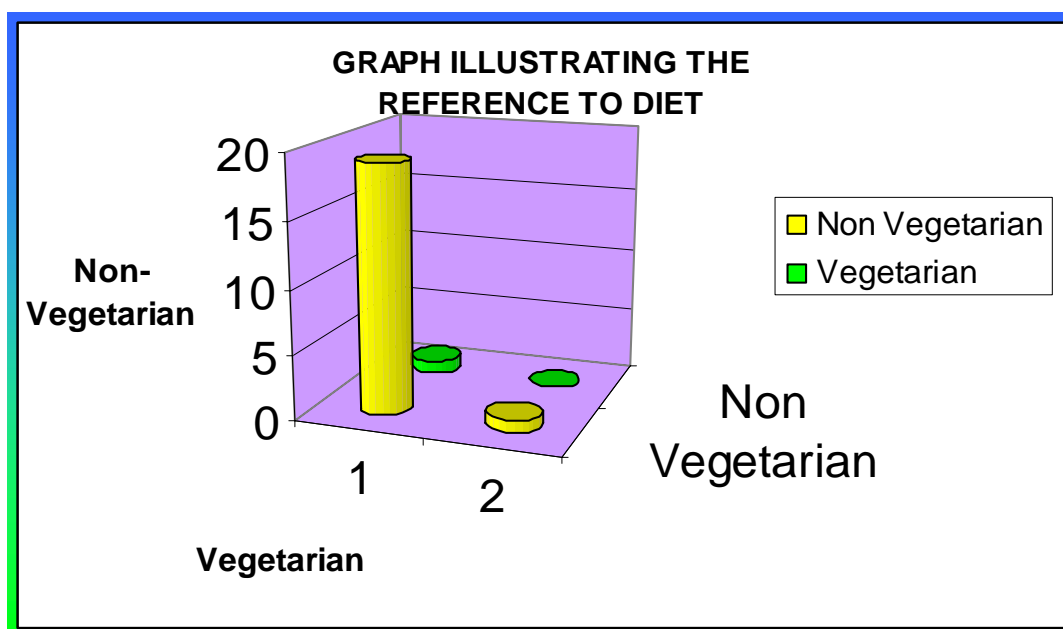


7. REFERENCE TO DIET

Among the twenty patients, Nineteen patients were Non vegetarian (95%) and one patient was Vegetarian (5%)

Table - 7

| S.No | Diet | No. of Patients | Percentage |
|------|----------------|-----------------|------------|
| 1 | Non Vegetarian | 19 | 95% |
| 2 | Vegetarian | 1 | 5% |



8. PATHOLOGICAL HISTORY REFERENCE

All patients are having no related Pathological conditions in this disease (100%)

Table - 8

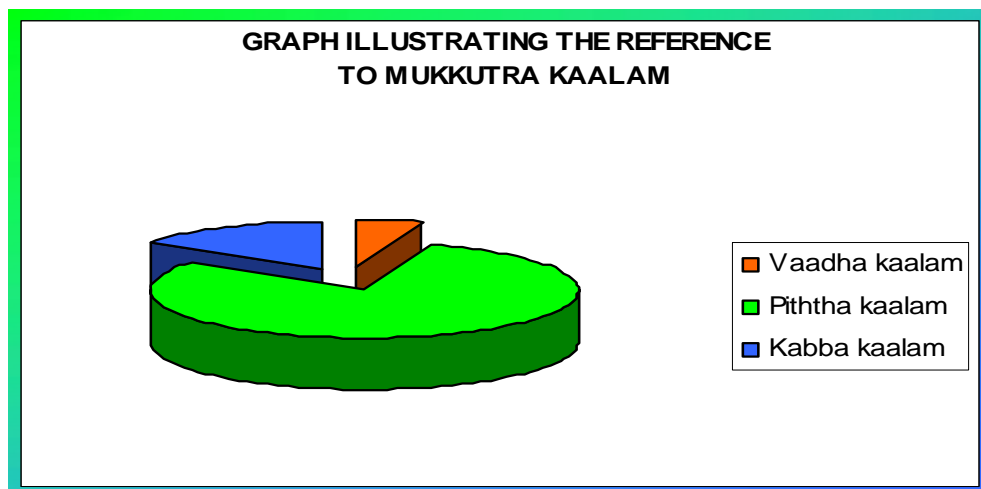
| S.No | Pathological | No. of Patients | Percentage |
|------|--------------|-----------------|------------|
| 1 | Positive | 0 | - |
| 2 | Negative | 20 | 100% |

9. DISTRIBUTION ACCORDING TO MUKKUTRA KAALAM

Among twenty patients, one patient belonged to the Vaadha kaalam during 1-33 years (5%). Fifteen patients under study belonged to the piththa kaalam during 34-66 years (75%) and four patients belonged to the kabha kaalam during 67-100 years (20%)

Table - 9

| S.No | Kaalam (Age) | No. of Patients | Percentage |
|------|-----------------------------|-----------------|------------|
| 1 | Vaadha Kaalam (1- 33 yr) | 1 | 5% |
| 2 | Piththa Kaalam (34 - 66 yr) | 15 | 75% |
| 3 | Kabha kaalam (67 - 100 yr) | 4 | 20% |



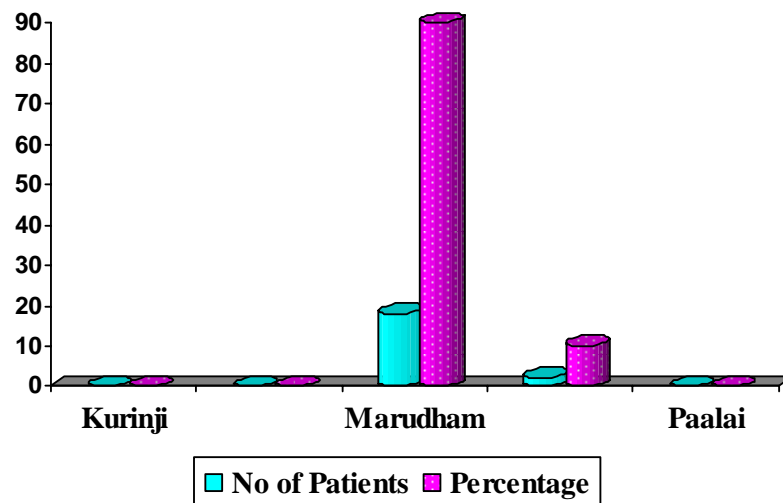
10. THINAI (OR) LAND INCIDENCE

Among the twenty patients, Eighteen patients hailed from Marudham (90%) and two patients from Neidhal (10%)

Table - 10

| S.No | Thinai (or) Land | No. of Patients | Percentage |
|------|------------------|-----------------|------------|
| 1 | Kurinji | - | - |
| 2 | Mullai | - | - |
| 3 | Marudham | 18 | 90% |
| 4 | Neidhal | 2 | 10% |
| 5 | Paalai | - | - |

Graph Illustrating The reference to Thinai (or) land



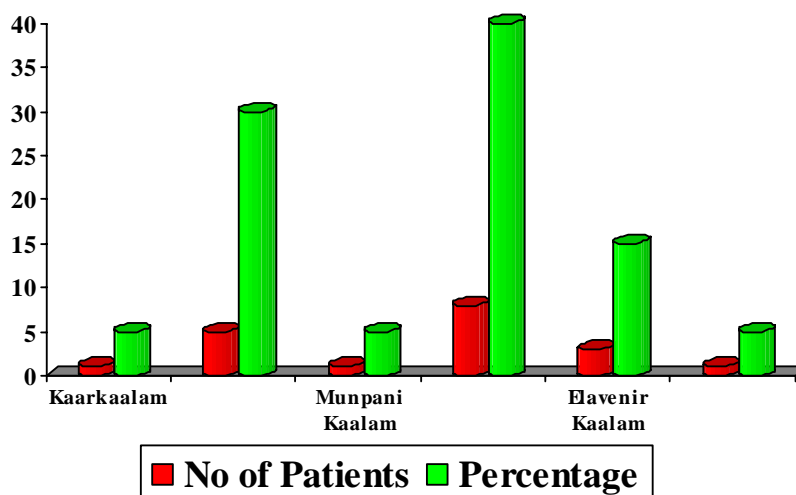
11. SEASONAL (PARUVA KAALA) INCIDENCE

Out of Twenty patients, one patient were affected during kaar kaalam (5%), Six patients during Koothir Kaalam (30%), One patients during Munpani kaalam (5%) Eight patient during Pinpani kaalam (40%) Three patients during Elavenir Kaalam (15%) and one patient during Mudhuvenir kaalam (5%)

Table - 11

| S.No | Paruva kaalam (Seasons) | Month | No. of Patients | Percentage |
|------|-------------------------|--|-----------------|------------|
| 1 | Kaar kaalam | Avani, Purattasi 15th August to 14th October | 1 | 5% |
| 2 | Koodhir kaalam | Ippasi, Kaarthigai 15th October to 14th December | 6 | 30% |
| 3 | Munpani kaalam | Maargazhi, Thai 15th December to 14th Feburary | 1 | 5% |
| 4 | Pinpani kaalam | Maasi, Panguni 15th February to 14th April | 8 | 40% |
| 5 | Elavenir kaalam | Chiththirai, Vaigaasi 15th April to 14th June | 3 | 15% |
| 6 | Muduvener kaalam | Aani, Aadi 15th June to 14th August | 1 | 5% |

Graph Illustrating The reference to Seasonal incidence



12. INCIDENCE OF PAKKA VAADHAM ACCORDING TO THE SIDE EXISTS

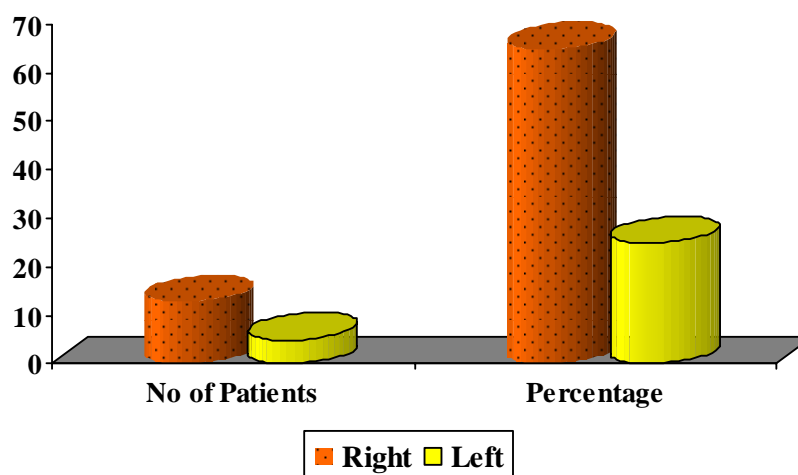
Among the twenty patients, the right side was affected in male Thirteen patients (65%) and left side was affected in male five patients (25%)

Male

Table - 12 (1)

| S.No | Affected side | No. of Patients | Percentage |
|------|---------------|-----------------|------------|
| 1 | Right | 13 | 65% |
| 2 | Left | 5 | 25 |

Male patients

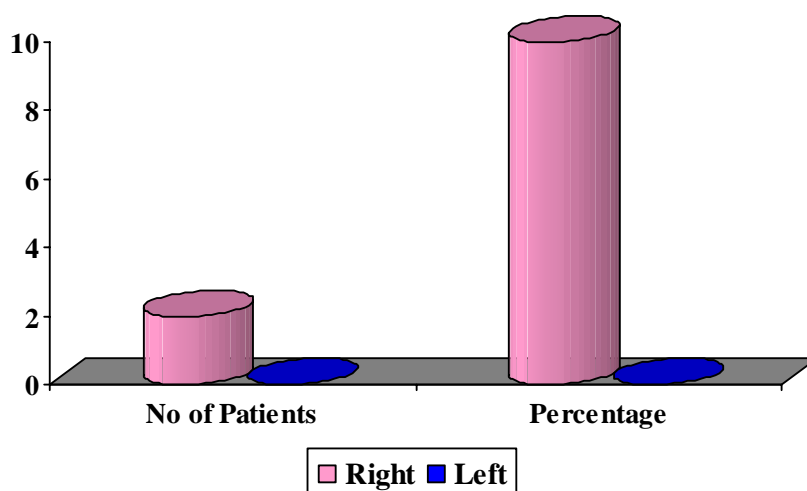


Among the 20 patients two female patients affected in right side only Female

Table - 12 (2)

| S.No | Affected side | No. of Patients | Percentage |
|------|---------------|-----------------|------------|
| 1 | Right | 2 | 10% |
| 2 | Left | - | - |

Female patients

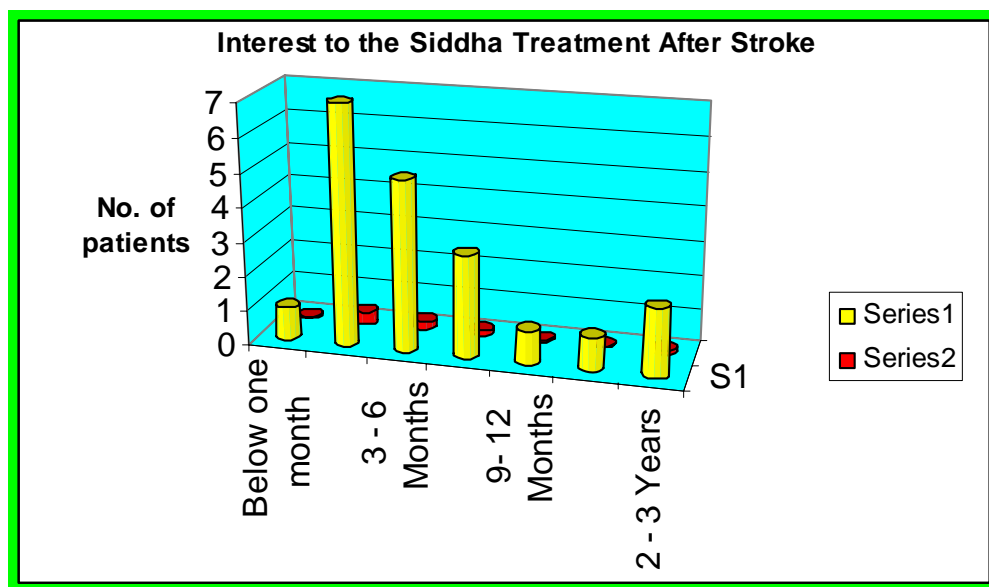


13. INTEREST TO THE SIDDHA TREATMENT AFTER STROKE

Among twenty patients, only one patient (5%) was admitted for siddha system of treatment immediately after stroke, seven patient's were admitted after 1-3 months (35%), five patients admitted after 3-6 months (25%), Three patients admitted after 6-9 months (15%), One patients admitted after 9-12 months (5%), one patient admitted after 1-2 years (5%) and two patients admitted after 2-3 years (10%), of stroke.

Table - 13

| S.No | Duration after stroke | No. of Patients | Percentage |
|------|-----------------------|-----------------|------------|
| 1 | Below one month | 1 | 5% |
| 2 | 1 - 3 Months | 7 | 35% |
| 3 | 3 - 6 Months | 5 | 25% |
| 4 | 6 - 9 Months | 3 | 15% |
| 5 | 9- 12 Months | 1 | 5% |
| 6 | 1 - 2 Years | 1 | 5% |
| 7 | 2 - 3 Years | 2 | 10% |

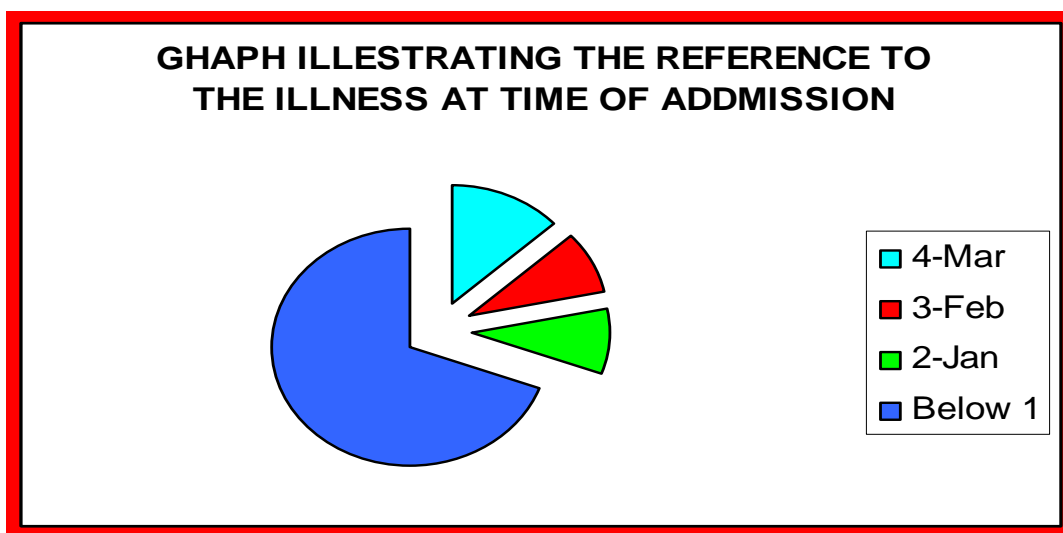


14. DURATION OF ILLNESS AT THE TIME OF ADMISSION

At the time of admission among the twenty patients, sixteen patients had been suffered below 1 year (80%), two patients from 1 to 2 years (10%) and two patients from 2 to 3 years (10%)

Table - 14

| S.No | Duration of Illness (In years) | No. of Patients | Percentage |
|------|-----------------------------------|-----------------|------------|
| 1 | 3-4 | - | - |
| 2 | 2-3 | 2 | 10% |
| 3 | 1-2 | 2 | 10% |
| 4 | Below 1 | 16 | 80% |



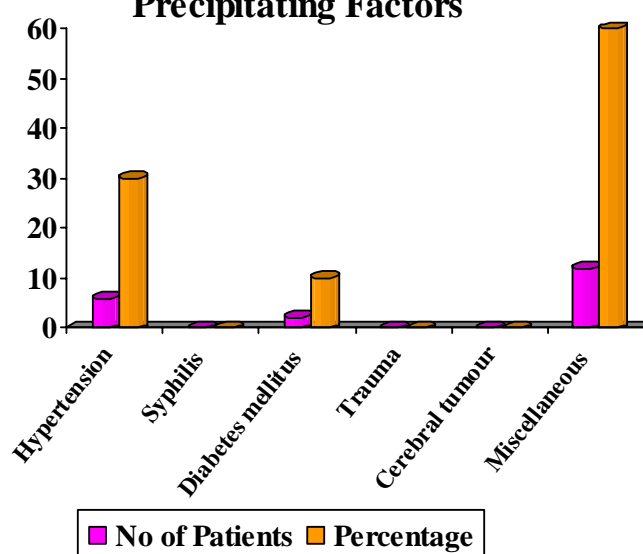
15. PRECIPITATING FACTORS

In the twenty patients, Hypertension was the precipitating factor in six patients (30%), two patients only diabetic, trauma and twelve patients having other complaints. (60%).

Table - 15

| S.No | Precipitating Factors | No. of Patients | Percentage |
|------|-----------------------|-----------------|------------|
| 1 | Hypertension | 6 | 30% |
| 2 | Syphilis | - | - |
| 3 | Diabetes mellitus | 2 | 10% |
| 4 | Trauma | - | - |
| 5 | Cerebral tumour | - | - |
| 6 | Miscellaneous | 12 | 60% |

Graph Illustrating the Reference to the Precipitating Factors



ADMINISTRATION OF TRIAL DRUGS

The patients were treated with the trial drugs,

1. Kodiveli Chooranam 1g with hot water twice a day after meal internally and
2. Kiranthikathi thylam was given for external application over the affected area.

To the some patients Murukkan viththu mathirai 1 in the early morning was given as purgative according to the condition of the body, one day previously before starting the treatment. When ever the patients complained of constipation Nilavaagai chooranam 5 mg at bed time with hot water was given at night.

Bio-Chemical analysis of the Trial drug was done in the Department of Bio-Chemistry at Government Siddha Medical College, Palayamkottai.

Pharmacological analysis of the trial drugs was done in the department of pharmacology, Government Siddha Medical College, Palayamkottai.

At the time of discharge, all the patients were advised to follow this Treatment and attend the out-patients department for the follow- up study.

16. CLINICAL PRESENTATION

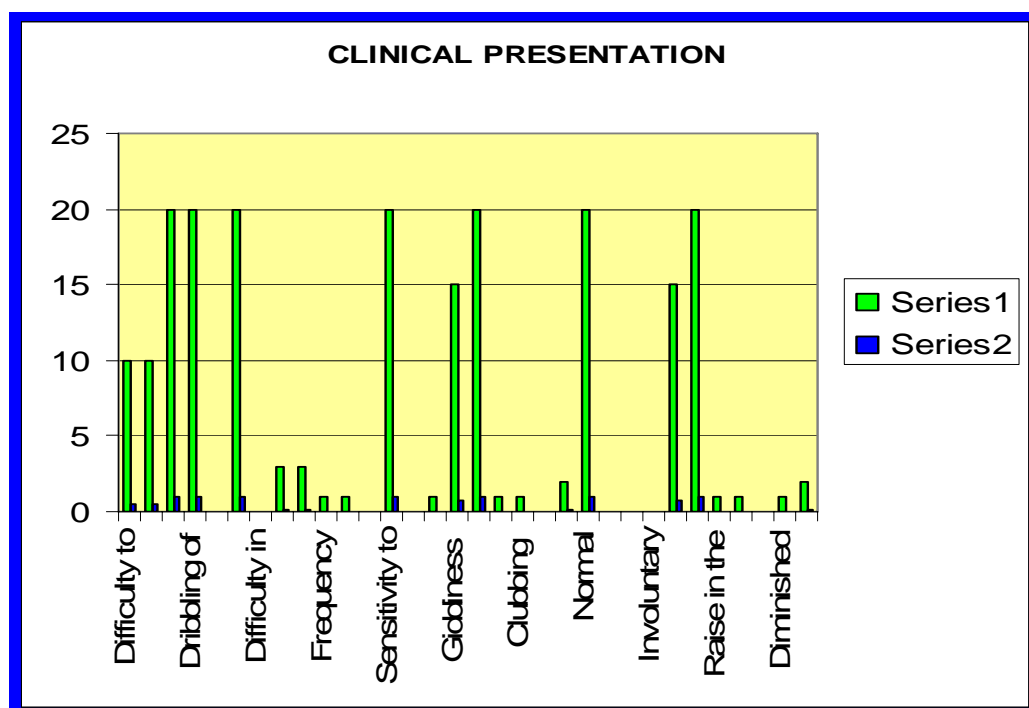
All the patients admitted in ward were carefully examined the signs and symptoms of all patients were noted. Among twenty patients the difficulty to use left upper limb and lower limb was noted in ten patients (50%), the difficulty to use right upper limb and lower limb was noted in ten patients (50%) the deviation of mouth was noted in twenty patients (100%) Drooling of saliva was noted in twenty patient (100%) difficulty in speaking was noted in all patients (100%) the breathless ness noted in three patients (15%) the excessive thirst noted in three patients (15%) frequency of micturition noted in one patient (5%) burning sensation all over the body noted in one patient (5%) sensitivity to pain in all patients (100%), loss of weight noted in one patient (5%) giddiness noted in fifteen patients (75%), epilepsy in one patient (5%), circumduction gait found in all patients (100%), clubbing seen in one patient (5%) pedal oedema noted in two patients (10%), normal higher intellectual function seen in all the twenty patients (100%), mental depression was noted in fifteen patients (75%), pain in the joints was complained in twenty patients (100%), raise in the temperature was noted in one patient (5%), loss of appetite seen in one patient (5%), cough noted in two patients (10%) diminished vision found in one patient (5%) and sleeplessness in two patient (10%).

CLINICAL PRESENTATION

Table - 16

| S.No | Signs and symptoms | No. of Patients | Percentage |
|------|--|-----------------|------------|
| 1 | Difficulty to use Lt upper and lower limbs | 10 | 50% |
| 2 | Difficulty to use Rt upper and lower limbs | 10 | 50% |
| 3 | Deviation of mouth | 20 | 100% |
| 4 | Dripping of saliva | 20 | 100% |
| 5 | Difficulty to close the eyes | - | - |
| 6 | Difficulty in swallowing | - | - |

| | | | |
|----|--------------------------------------|----|------|
| 7 | Breathlessness | 3 | 15% |
| 8 | Excessive thirst | 3 | 15% |
| 9 | Frequency of micturition | 1 | 5% |
| 10 | Burning sensation all over the body | 1 | 5% |
| 11 | Head ache | - | - |
| 12 | Sensitivity to pain | 20 | 100% |
| 13 | Past H/O similar episode | - | - |
| 14 | Loss of weight | 1 | 5% |
| 15 | Giddiness | 15 | 75% |
| 16 | Circumduction gait | 20 | 100% |
| 17 | Epilepsy | 1 | 5% |
| 18 | Clubbing | 1 | 5% |
| 19 | Anaemia | - | - |
| 20 | Pedal oedema | 2 | 10% |
| 21 | Normal higher intellectual functions | 20 | 100% |
| 22 | Muscular wasting | - | - |
| 23 | Constipation | - | - |
| 24 | Involuntary movements | - | - |
| 25 | Mental depression | 15 | 75% |
| 26 | Pain in the joints | 20 | 100% |
| 27 | Raise in the temperature | 1 | 5% |
| 28 | Loss of appetite | 1 | 5% |
| 29 | Cough | 2 | 10% |
| 30 | Tiredness | - | - |
| 31 | Diminished vision | 1 | 5% |
| 32 | Sleeplessness | 2 | 10% |



17. CONDITIONS OF UYIR THAADHUKKAL

1. Vaadham

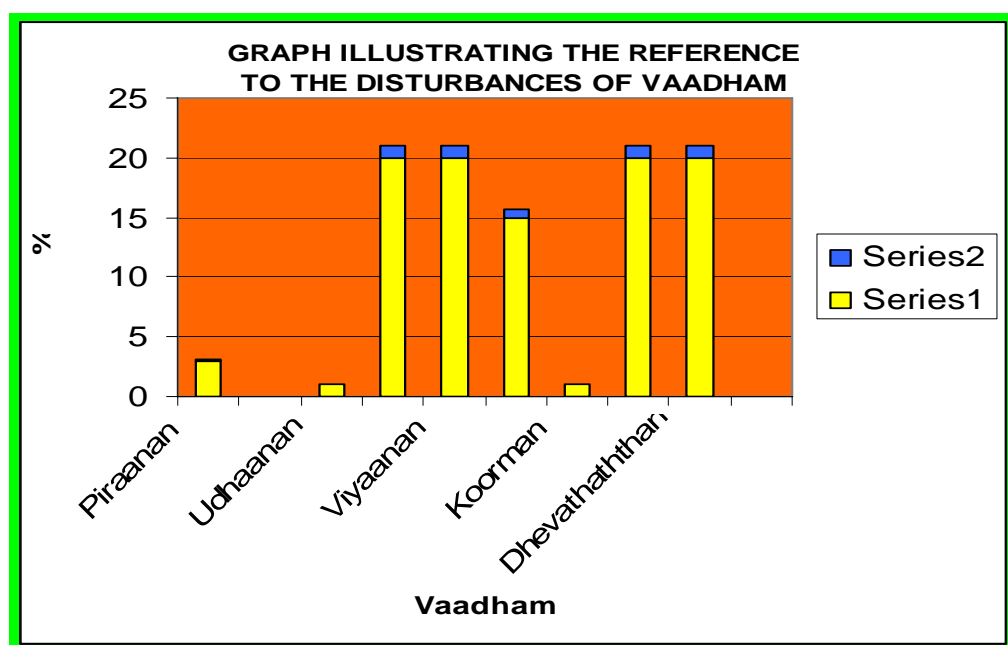
"Distribution according to the disturbances of Ten Vaadham"

Among the twenty patients, three patients derangement piranan was indicated breathlessness (15%) in ten patients (50%) Derangement of viyaanan was noted in all patients by the restricted movements of one side limbs and nutritional changes of the muscles (100%). Derangement of udhaanan was noted in one patient (5%) having loss of appetite and cough. Derangement of samaanan was invariable in all the patients due to the derangement of other vaayus (100%). Naagan was noted to be deranged in fifteen patient who were mentally depressed (75%). Derangement of koorman was found in one patients who had diminished vision (5%). Kirugaran was found to be deranged in twenty patients as evidenced by Drooling of saliva (100%). Derangement of dhevaththatan was found in all the patients as indicated by lethargy or disturbed sleep rhythm (100%)

CLINICAL PRESENTATION

Table - 17

| S.No | Vaadham | No. of Patients | Percentage |
|------|----------------|-----------------|------------|
| 1 | Piraanan | 3 | 15% |
| 2 | Abaanan | - | - |
| 3 | Udhaanan | 1 | 5% |
| 4 | Samaanan | 20 | 100% |
| 5 | Viyaanan | 20 | 100% |
| 6 | Naagan | 15 | 75% |
| 7 | Koorman | 1 | 5% |
| 8 | Kirugaran | 20 | 100% |
| 9 | Dhevathaththan | 20 | 100% |
| 10 | Thananjeyan | - | - |



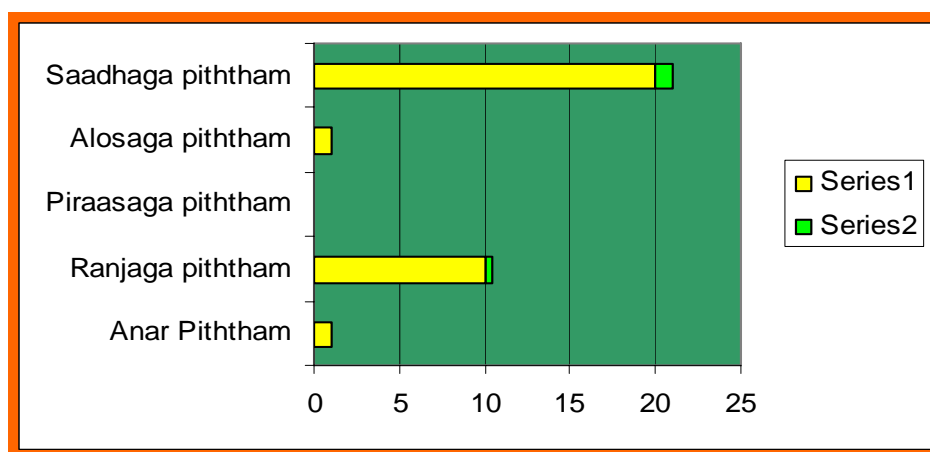
2. PITHTHAM

Distribution according to the disturbances of five piththam

The conditions of piththam with reference to its five types were studied in all patients. Anar piththam was noted to be deranged in one patients as evidenced loss of appetite (5%) Ranjaga piththam was found to be deranged in ten patients as evidenced by low Hb% in blood, pallor of tongue, nail and conjunctiva (50%) Piraasaga piththam was found be normal in all the patients. In one patients derangement of alosaga piththam was noted as evidenced by diminished vision (5%). Saadhaga piththam was found to be deranged in all patients evidenced by difficulty in attending their regular duties (100%)

Table - 18

| S.No | Piththam | No. of Patients | Percentage |
|------|--------------------|-----------------|------------|
| 1 | Anar Piththam | 1 | 5% |
| 2 | Ranjaga piththam | 10 | 50% |
| 3 | Piraasaga piththam | - | - |
| 4 | Alosaga piththam | 1 | 5% |
| 5 | Saadhaga piththam | 20 | 100% |



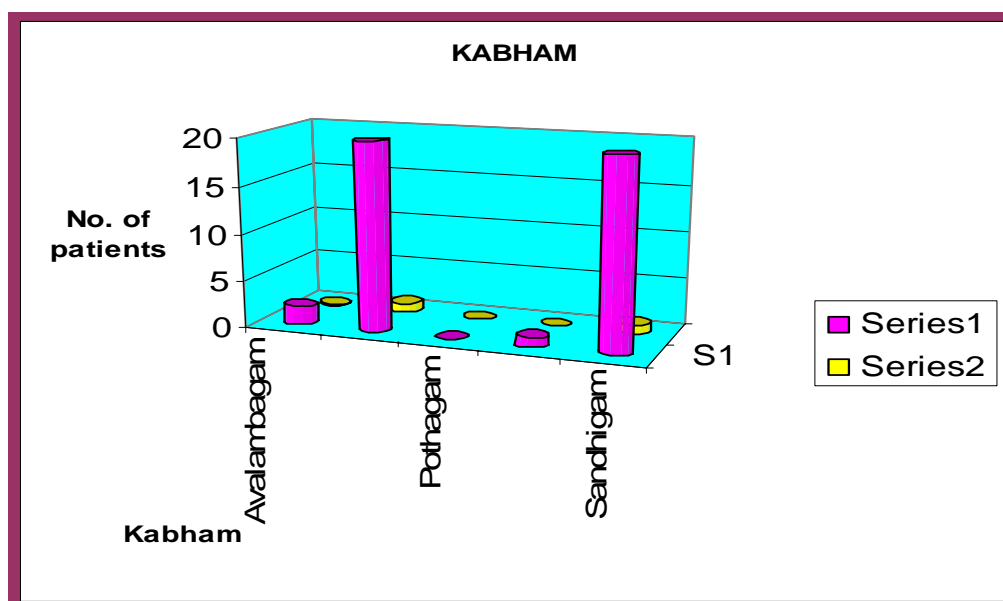
3. KABHAM

Distribution according to the disturbances of five kabham

The conditions of kabham were studied with reference to five kabham. Deranged avalambagam was noted in two patients with symptoms of cough and expectoration (10%) Derangement of kiledhagam was noted in twenty patients with symptoms of Drolling of salvia (100%) Pothagam was found to be normal in all twenty patients Derangement of tharpagam was noted in one patient who had burning sensation of eyes and all over the body. Sandhigam was found to be deranged in twenty patients with knee pain (100%)

Table - 19

| S.No | Kabham | No. of Patients | Percentage |
|------|-------------|-----------------|------------|
| 1 | Avalambagam | 2 | 10% |
| 2 | Kiledhagam | 20 | 100% |
| 3 | Pothagam | - | - |
| 4 | Tharpagam | 1 | 5% |
| 5 | Sandhigam | 20 | 100% |

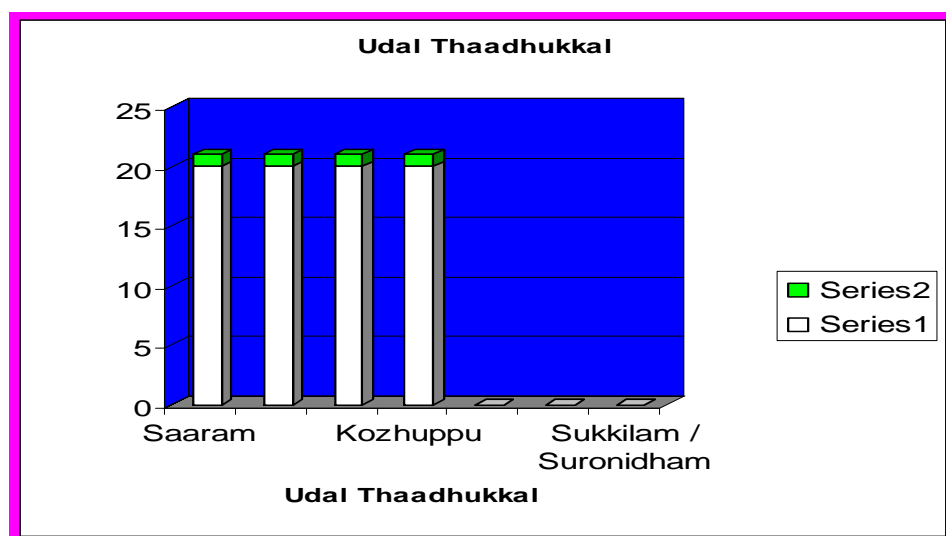


18. CONDITIONS OF UDAL THAADUKKAL

In all twenty patients, saaram was affected as evidenced by tiredness, lethargic and mentally depressed (100%). Senneer was affected in all the patients as evidence by increased ESR and decreased haemoglobin (100%). Oon was affected in all the patients as evidenced by muscle weakness (100%). Kozhuppu was affected in all the patients as evidenced by the difficulty of the half of the body movements. Sukkilam / Suronidham was normal in all twenty patients.

Table - 20

| S.No | Udal Thaadhukkal | No. of Patients | Percentage |
|------|-----------------------|-----------------|------------|
| 1 | Saaram | 20 | 100% |
| 2 | Senneer | 20 | 100% |
| 3 | Oon | 20 | 100% |
| 4 | Kozhuppu | 20 | 100% |
| 5 | Enbu | - | - |
| 6 | Moolai | - | - |
| 7 | Sukkilam / Suronidham | - | - |



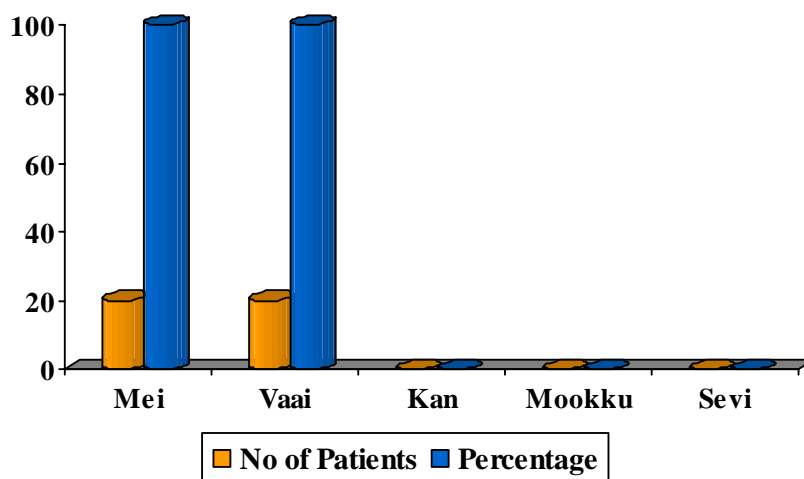
19. PORIGALUM, PULANGALUM

Mei and vaai was affected in all patients. Mookku and sevi were found to be normal in all patients.

Table - 21

| S.No | Porigalum, pulangalum | No. of Patients | Percentage |
|------|-----------------------|-----------------|------------|
| 1 | Mei | 20 | 100% |
| 2 | Vaai | 20 | 100% |
| 3 | Kan | - | - |
| 4 | Mookku | - | - |
| 5 | Sevi | - | - |

Porigalum, Pulangalum



20. ENVAGAI THERVUGAL

1. Naa was Coated in fourteen patients 70% and the sense of taste was found to be normal
2. Niram was found normal in all patients
3. Mozhi was affected in all the patients as evidenced by difficulty in speaking (100%)
4. Vizhi was affected in one patient as evidenced by the presence of diminished vision (5%)
5. Sparisam was affected in all the patients as evidenced by muscle weakness (100%)
6. At the time of admission all patients of stools are found to be normal.
7. In neerkuri, edai of the siruneer (mooththiram) was affected in fifteen patients by the evidence of puscells in mooththiram (75%)
8. The enjal was affected in two patients evidence of frequent micturition (10%)

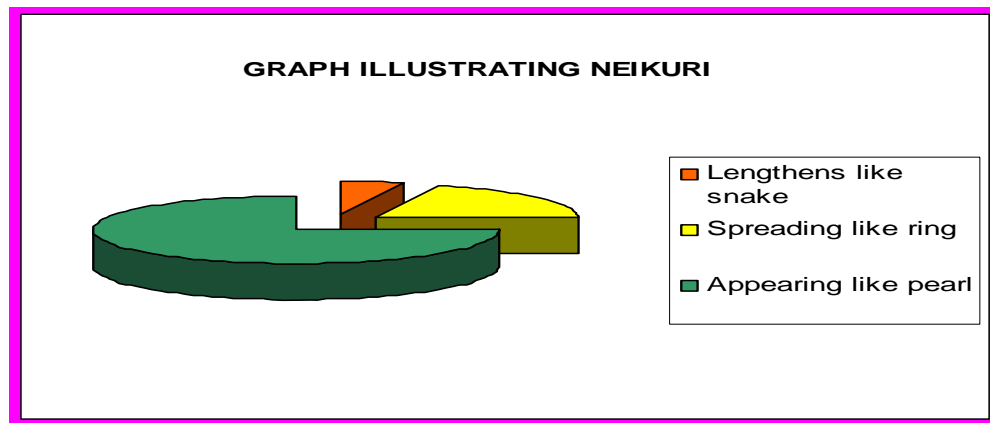
In neikuri the oil drop in urine.

- a) Lengthens like snake in one patients - vaadhaneer 5%
- b) Spreads like ring in four patients - piththaneer 20%
- c) Appearing like pearl in fifteen patients - kabhaneer 75%

The niram, manam and nurai were found to be normal in all the patients.

Table - 22

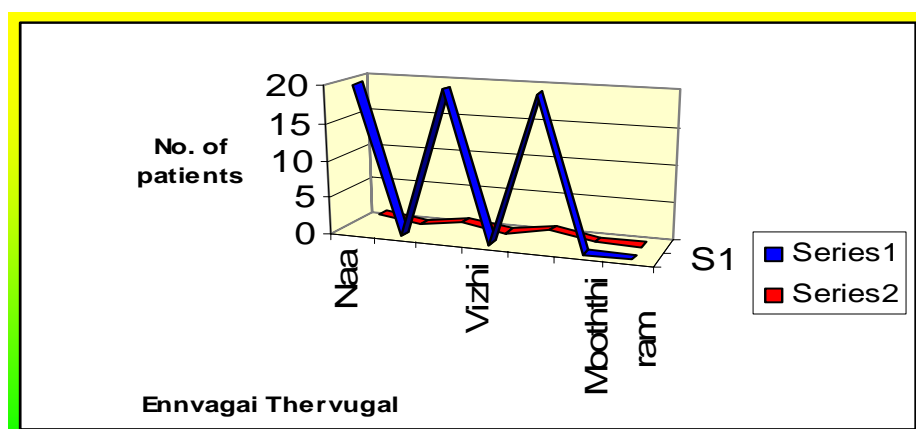
| S.No | Appearance of the oil drop | No. of Patients | Percentage |
|-------------|-----------------------------------|------------------------|-------------------|
| 1 | Lengthens like snake | 1 | 5% |
| 2 | Spreading like ring | 4 | 20% |
| 3 | Appearing like pearl | 15 | 75% |



21. GRAPH ILLUSTRATING THE REFERENCE TO ENNVAGAI THERVUGAL

Table - 23

| S.No | Enn vagai thervugal | No. of Patients | Percentage |
|------|---------------------|-----------------|------------|
| 1 | Naa | 20 | 100% |
| 2 | Niram | - | - |
| 3 | Mozhi | 20 | 100% |
| 4 | Vizhi | - | - |
| 5 | Naadi | 20 | 100% |
| 6 | Malam | - | - |
| 7 | Mooththiram | - | - |
| 8 | Sparisam | 20 | 100% |



22. NAADI NADAI

Naadi was affected in all twenty patients as evidenced by vaadham in fifteen patients (75%), vaadha pitham in three patients (15%), piththa vaadham in one patients (5%) and piththa kabham in one patients (5%).

Table - 24

| S.No | Naadi Nadai | No. of Patients | Percentage |
|------|-----------------|-----------------|------------|
| 1 | Vaadham | 15 | 75% |
| 2 | Piththam | - | - |
| 3 | Kabham | - | - |
| 4 | Vaadhapiththam | 3 | 15% |
| 5 | Vaadha kabham | - | - |
| 6 | Piththa Vaadham | 1 | 5% |
| 7 | Piththa Kabham | 1 | 5% |
| 8 | Kabha Vaadham | - | - |
| 9 | Kabha Piththam | - | - |

OBSERVATION OF CLINICAL LABORATORY INVESTIGATIONS

At the time of admission routine laboratory investigations like Blood test, (WBC, Total Count, Differential count, Erythrocyte sedimentation Rate, haemoglobin level, sugar, urea, bleeding time, clotting time & Prothrombin test) urine analysis were done properly.

CLINICAL LABORATORY INVESTIGATIONS

HAEMATOLOGICAL STUDIES

1. OBSERVATION OF HAEMOGLOBIN CONTENT

The haemoglobin level (Hb%) was increased in almost all the patients. In ten patients (50%) the Hb% was ranged from 60-70%. In nine patients (45%) the Hb% was ranged from 71-80% and one patients (5%) the Hb% ranged from 81-90%.

Table - 25

| S.No | Haemoglobin (in %) | No. of Patients | Percentage |
|-------------|-------------------------------|------------------------|-------------------|
| 1 | 60-70 | 10 | 50% |
| 2 | 71-80 | 9 | 45% |
| 3 | 81-90 | 1 | 5% |
| 4 | Above 91 | - | - |

2. LEUCOCYTES TOTAL COUNT

Total WBC count was above 8000/ cumm in all the patients. In Nineteen patients it was ranged from 8000 to 10000/ cumm and in one patient it was ranged from 10000 to 11000 / cumm

Table - 26

| S.No | WBC Total count range (cumm) | No. of Patients | Percentage |
|------|------------------------------|-----------------|------------|
| 1 | Below 8000 | - | - |
| 2 | 8000 to 10000 | 19 | 95% |
| 3 | 10000 to 12000 | 1 | 5% |

2. WBC - DIFFERENTIAL COUNT

Polymorphs and lymphocytes counts are normal in all twenty patients. Eosinophil count was very high in two patients (10%) ranged above 9%

Table - 27

| S.No | Polymorphs count (%) | No. of Patients | Percentage |
|------|----------------------|-----------------|------------|
| 1 | Below 60 | 12 | 60% |
| 2 | 61-70 | 7 | 35% |
| 3 | 71-80 | 1 | 5% |
| 4 | 81 and above | - | - |

Table - 28

| S.No | Lymphocytes count (%) | No. of Patients | Percentage |
|------|-----------------------|-----------------|------------|
| 1 | Below 25 | 2 | 10% |
| 2 | 25-30 | 6 | 30% |
| 3 | 31-35 | 1 | 5% |
| 4 | 36-40 | 5 | 25% |
| 5 | 41-45 | 6 | 30% |

Table - 29

| S.No | Eosinophil count (%) | No. of Patients | Percentage |
|------|----------------------|-----------------|------------|
| 1 | 1-3 | 6 | 30% |
| 2 | 4-6 | 11 | 55% |
| 3 | 7-9 | 1 | 5% |
| 4 | Above 9 | 2 | 10% |

ERYTHROCYTE SEDIMENTATION RATE

Among the twenty patients the ESR was normal in five patients (25%) and it was showing to be increasing fifteen patients upto 95mm / hr.

Table - 30**ERYTHROCYTE SEDIMENTATION RATE**

| S.No | ESR mm/hr | No. of Patients | Percentage |
|------|-----------|-----------------|------------|
| 1 | 1-5 | 5 | 25% |
| 2 | 6-10 | 7 | 35% |
| 3 | 11-15 | 3 | 15% |
| 4 | 16-20 | 1 | 5% |
| 5 | 21-25 | - | - |
| 6 | 26-30 | 1 | 5% |
| 7 | 31-35 | 2 | 10% |
| 8 | 36-40 | - | - |
| 9 | 41-50 | 1 | 5% |
| 10 | 51-100 | - | - |
| 11 | 101-150 | - | - |

5. OBSERVATION OF BLOOD SUGAR

The random blood sugar was observed in all twenty patients it seemed to be below normal in Eighteen (90%) and it increased in two patients (10%).

OBSERVATION OF BLOOD SUGAR

Table - 31

| S.No | Blood sugar (mgm %) | No. of Patients | Percentage |
|------|---------------------|-----------------|------------|
| 1 | Range below 120 | 18 | 90% |
| 2 | Range above 120 | 2 | 10% |

6. OBSERVATION OF BLOOD UREA

The blood urea was observed in all twenty patients it seemed to be normal in all patients (100%).

OBSERVATION OF BLOOD UREA

Table - 32

| S.No | Blood Urea (mgm %) | No. of Patients | Percentage |
|------|--------------------|-----------------|------------|
| 1 | Range below 40 mgm | 20 | 100% |
| 2 | Range above 40 mgm | - | - |

7. OBSERVATION OF SERUM CHOLESTEROL

The serum cholesterol was observed in all twenty patients it seemed to be normal in ten patients (50%), it slightly increased in eight patients (40%) and it increased in two patients (10%).

OBSERVATION OF SERUM CHOLESTEROL

Table - 33

| S.No | Serum cholesterol (mgm%) | No. of Patients | Percentage |
|------|--------------------------|-----------------|------------|
| 1 | 100-160 | 10 | 50% |
| 2 | 161-200 | 8 | 40% |
| 3 | Above 200 | 2 | 10% |

OBSERVATION OF LIPID PROFILE

Table - 34

| S.No | Lipid Profile | No. of Patients | Percentage |
|------|---------------|-----------------|------------|
| 1 | HDL | 20 | 100 % |
| 2 | Triglycerides | 18 | 90 % |
| 3 | LDL | 15 | 75 % |
| 4 | VLDL | 10 | 50 % |
| 5 | LDL / HDL | 20 | 100 % |
| 6 | Total HDL | 20 | 100 % |

8. URINE ANALYSIS

For the analysis of urine in twenty patients, albumin was absent in all patients, sugar present in one patient (5%), pus cells present in eight patients (40%) and NAD in eleven patients (55%)

Table - 35

| S.No | Urine Analysis | No. of Patients | Percentage |
|-------------|-----------------------|------------------------|-------------------|
| 1 | Albumin | - | - |
| 2 | Sugar | 1 | 5% |
| 3 | Pus cells | 8 | 40% |
| 4 | NAD | 11 | 55% |

9. MOTION ANALYSIS

No ova and cyst were found to all the twenty patients in motion analysis.

CLINICAL LABORATORY INVESTIGATIONS

CLINICAL LABORATORY INVESTIGATIONS

| S.N | IP.NO | WBC Total count (Cu mm) | | WBC Differential Count | | | | | | ESR Mm ½ hr, 1 hr | | Hb % | | Sugar mgs RA% | | Urea mgs % | | Cholesterol mgs % | | Bleeding Time Min, sec | | Clotting time Min, sec | | Urine analysis | | Motion analysis | |
|-----|-------|----------------------------|-------|------------------------|----|----|----|----|---|----------------------|-------|------|----|------------------|-----|---------------|----|----------------------|-----|------------------------------|------|------------------------------|------|-------------------|-----|--------------------|----|
| | | | | BT | | | AT | | | | | | | | | | | | | | | | | | | | |
| | | BT | AT | P | L | E | P | L | E | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT |
| 1 | 854 | 9000 | 9100 | 60 | 40 | 4 | 60 | 40 | 3 | 15-30 | 15-30 | 70 | 75 | 100 | 100 | 30 | 35 | 210 | 200 | 1.55 | 1.55 | 2.10 | 3.00 | Pus | Pus | - | - |
| 2 | 883 | 10100 | 10100 | 68 | 39 | 3 | 68 | 39 | 4 | 7-14 | 7-14 | 70 | 80 | 190 | 130 | 30 | 30 | 200 | 220 | 2.15 | 2.15 | 3.10 | 3.00 | Epi | - | - | - |
| 3 | 1026 | 8500 | 9200 | 58 | 30 | 12 | 58 | 30 | 8 | 7-15 | 10-18 | 75 | 80 | 87 | 80 | 22 | 32 | 146 | 150 | 1.50 | 1.50 | 2.40 | 4.00 | Cris | - | - | - |
| 4 | 1192 | 9600 | 10000 | 58 | 40 | 2 | 58 | 40 | 2 | 6-18 | 6-18 | 64 | 64 | 210 | 140 | 20 | 28 | 160 | 160 | 1.52 | 1.50 | 2.10 | 2.20 | Pus | - | - | - |
| 5 | 2368 | 10000 | 9600 | 70 | 40 | 6 | 68 | 38 | 6 | 14-24 | 11-20 | 68 | 70 | 78 | 80 | 30 | 35 | 172 | 170 | 1.40 | 1.40 | 3.00 | 3.20 | NAD | - | - | - |
| 6 | 2605 | 8600 | 9200 | 65 | 30 | 5 | 68 | 29 | 3 | 2-4 | 3-6 | 72 | 80 | 198 | 166 | 23 | 23 | 162 | 160 | 1.40 | 1.50 | 3.35 | 3.30 | Sug | Sug | - | - |
| 7 | 2648 | 8000 | 8400 | 69 | 23 | 8 | 65 | 31 | 4 | 2-4 | 2-4 | 75 | 66 | 89 | 107 | 30 | 38 | 259 | 162 | 1.40 | 1.50 | 2.00 | 2.20 | Pus | Pus | - | - |
| 8 | 2807 | 9200 | 8100 | 56 | 42 | 2 | 58 | 38 | 4 | 18-35 | 14-30 | 67 | 65 | 79 | 86 | 20 | 26 | 168 | 265 | 1.50 | 1.55 | 3.10 | 4.00 | NAD | NAD | - | - |
| 9 | 2815 | 8000 | 8300 | 59 | 36 | 5 | 62 | 34 | 2 | 3-7 | 2-5 | 68 | 71 | 82 | 80 | 30 | 35 | 171 | 170 | 2.00 | 2.20 | 2.50 | 2.50 | Pus | Pus | - | - |
| 10 | 2841 | 9000 | 9000 | 60 | 36 | 4 | 58 | 24 | 4 | 2-5 | 10-20 | 67 | 70 | 120 | 120 | 20 | 20 | 180 | 190 | 2.05 | 2.05 | 3.30 | 3.05 | - | - | - | - |
| 11 | 2949 | 9000 | 9200 | 68 | 36 | 4 | 66 | 36 | 4 | 10-20 | 2-5 | 66 | 80 | 100 | 126 | 30 | 30 | 179 | 190 | 1.48 | 2.54 | 2.50 | 3.06 | Pus | Pus | - | - |
| 12 | 3025 | 9400 | 9000 | 54 | 44 | 2 | 64 | 32 | 4 | 32-60 | 7-18 | 75 | 70 | 94 | 86 | 28 | 28 | 164 | 159 | 1.45 | 1.50 | 2.40 | 3.16 | NAD | NAD | - | - |
| 13 | 146 | 9000 | 9000 | 60 | 36 | 4 | 68 | 30 | 4 | 10-22 | 18-40 | 69 | 65 | 239 | 126 | 30 | 20 | 253 | 250 | 2.00 | 2.00 | 2.55 | 3.08 | Sug | NAD | - | - |
| 14 | 525 | 9000 | 9600 | 60 | 28 | 2 | 64 | 34 | 2 | 30-92 | 30-65 | 71 | 68 | 127 | 104 | 30 | 35 | 305 | 240 | 2.00 | 1.50 | 3.05 | 3.06 | Pus Al Sug | NAD | - | - |
| 15 | 554 | 9400 | 9000 | 76 | 20 | 4 | 60 | 20 | 2 | 32-60 | 10-20 | 66 | 70 | 196 | 120 | 20 | 20 | 185 | 160 | 1.50 | 2.00 | 2.50 | 3.00 | Sug NAD | - | - | - |
| 16 | 565 | 9600 | 9000 | 66 | 30 | 4 | 68 | 30 | 2 | 6-13 | 6-12 | 71 | 80 | 79 | 80 | 18 | 20 | 154 | 160 | 2.00 | 1.50 | 4.00 | 4.00 | NAD | - | - | - |
| 17 | 649 | 8600 | 8600 | 60 | 30 | 6 | 68 | 35 | 4 | 15-30 | 15-30 | 80 | 80 | 100 | 80 | 28 | 20 | 160 | 150 | 1.40 | 1.30 | 2.38 | 3.00 | Sug NAD | - | - | - |
| 18 | 826 | 9900 | 9000 | 66 | 30 | 4 | 68 | 30 | 4 | 30-62 | 20-40 | 71 | 80 | 95 | 80 | 18 | 20 | 162 | 170 | 2.10 | 1.58 | 3.00 | 3.50 | NAD | - | - | - |
| 19 | 1004 | 9500 | 9000 | 54 | 44 | 2 | 50 | 40 | 2 | 5-11 | 5-10 | 71 | 70 | 98 | 90 | 20 | 28 | 148 | 140 | 1.48 | 1.38 | 3.00 | 3.06 | NAD | - | - | - |
| 20 | 1028 | 8200 | 8000 | 54 | 32 | 14 | 58 | 30 | 4 | 2-5 | 2-4 | 88 | 88 | 96 | 96 | 28 | 28 | 151 | 160 | 2.00 | 3.50 | 3.50 | 3.40 | NAD | - | - | - |

S.No - Serial Number : I.P No. - Inpatient ward number : WBC - White blood corpuscle : Epi - Epithelial cell
 P - Polymorphs : L - Lymphocytes : E - Eosinophils : ESR – Erythrocyte sedimentation rate
 Hb - Haemoglobin : BT - Before treatment : AT - After treatment : Sug – Sugar

CLINICAL PRESENTATION

Case summary of inpatients

| SN | Particulars of Patients | Clinical Presentation at the time of admission | Clinical condition at the time of discharge | Medication | Clinical improvement |
|----|---|---|--|---|----------------------|
| 1 | Mr.Vijayan IP No. : 854 DOA : 28.03.07 DOD : 23.05.07 NDT : 67 Diabetes Mellitus | Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL 0/5 : LL 0/5 3. DTR : UL. II : LL. II 4. B.P : 140/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 2/5 LL. 2/5 2. DTR : UL. I LL. I 3. BP: 140/90 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Moderate |
| 2 | Mr.Jackin IP No. : 883 DOA : 31.03.07 DOD : 04.05.07 NDT : 35 Diabetes Mellitus | Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 120/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL.III LL.III 3. BP: 120/90 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 3 | Mr.Rajamani IP No. : 1026 DOA : 08.04.07 DOD : 05.05.07 NDT : 31 | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.II : LL.II 4. B.P : 140/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL. I 3. BP: 130/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |

| | | | | | |
|---|---|---|--|---|------|
| 4 | Mr.Ramakrishnan IP No. : 1192 DOA : 07.05.07 DOD : 06.06.07 NDT : 30 Diabetes Mellitus | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL0/5 : LL0/5 3. DTR : UL.III : LL.III 4. B.P : 140/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL. I 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 5 | Mr.IyyamPerumal IP No. : 2368 DOA : 21.09.07 DOD : 23.10.07 NDT : 32 | Pakkavatham : Rt 1. Cranial nerve involvement : VII 2. Power : UL0/5 : LL0/5 3. DTR : UL.III : LL.III 4. B.P : 140/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL. I 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 6 | Mr.Ayyamperumal IP No. : 2605 DOA : 24.10.07 DOD : 26.11.07 NDT : 31 Diabetic | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.II : LL.II 4. B.P : 130/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL I 3. BP: 130/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 7 | Mr.Jesuraj IP No. : 2648 DOA : 30.10.07 DOD : 06.12.07 NDT : 37 Hyper tension | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/4 : LL1/4 3. DTR : UL.IV : LL.IV 4. B.P : 160/100 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL. I 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |

| | | | | | |
|----|--|---|--|--|-----------|
| 8 | Mr.Lakshmanan IP No. : 2807 DOA : 15.11.07 DOD : 02.01.08 NDT : 48 | Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL0/5 : LL0/5 3. DTR : UL.III : LL.III 4. B.P : 130/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL I 3. BP: 130/90 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 9 | Mrs.Jeba mani IP No. : 2815 DOA : 16.11.07 DOD : 07.01.08 NDT : 52 | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 140/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL. II LL. II 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam | Good |
| 10 | Mr.Jackil IP No. : 2841 DOA : 19.11.07 DOD : 18.12.07 NDT : 29 | Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 130/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL. I 3. BP: 130/90 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Partially |
| 11 | Mrs.Innasi IP No. : 2949 DOA : 04.12.07 DOD : 30.12.07 NDT : 26 | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 140/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL I 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |

| | | | | | |
|----|--|---|---|---|----------|
| 12 | Mr.Samuthram IP No. : 3025 DOA : 12.12.07 DOD : 14.01.08 NDT : 33 Hyper tension | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 150/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL. I LL I 3. BP: 130/90 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 13 | Mr.Kasirajan IP No. : 146 DOA : 19.01.08 DOD : 04.03.08 NDT : 45 Hypertension | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 160/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL.II LL.II 3. BP: 150/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 14 | Mr.Sedhuramalingam IP No. : 525 DOA : 22.02.08 DOD : 26.04.08 NDT : 64 Hyper tension | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 150/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL. II LL II 3. BP: 130/90 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 15 | Mr.Vannamamalai IP No. : 554 DOA : 26.02.08 DOD : 27.03.08 NDT : 30 | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.II : LL.II 4. B.P : 130/90 mmHg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL. I 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Partialy |

| | | | | | |
|----|---|---|---|---|----------|
| 16 | Mr.Arjunan IP No. : 565 DOA : 26.02.08 DOD : 01.04.08 NDT : 34 | Pakkavatham : Rt: Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 130/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. II LL. II 3. BP: 130/90 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 17 | Mr.Kannaih IP No. : 649 DOA : 10.03.08 DOD : 11.04.08 NDT : 32 Hypertension | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.IV : LL.IV 4. B.P : 130/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL.3/5 LL. 3/5 2. DTR : UL. II LL. II 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 18 | Mr.Selvin durai IP No. : 826 DOA : 29.03.08 DOD : 06.05.08 NDT : 38 | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL3/5 : LL3/5 3. DTR : UL.I : LL.I 4. B.P : 150/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. II LL. II 3. BP: 150/80 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Good |
| 19 | Mr.Kailasam IP No. : 1004 DOA : 18.04.08 DOD : 19.05.08 NDT : 31 | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 | Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL.III LL.III | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Partialy |

| | | | | | |
|----|---|--|--|---|-----------|
| | Hypertension | 3. DTR : UL.IV : LL.IV 4. B.P : 170/100 mm Hg 5. Fundus Grade I 6. Plantar extensor response | 3. BP: 130/90 mmHg 4. Fundus Grade I 5. Plantar extensor | | |
| 20 | Mr.Meeran mydeen IP No. : 1028 DOA : 22.04.08 DOD : 19.05.08 NDT : 27 Hypertension | Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL2/5 3. DTR : UL.II : LL.II 4. B.P : 180/100 mm Hg 5. Fundus Grade I 6. Plantar extensor response | Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL II LL. II 3. BP: 140/100 mmHg 4. Fundus Grade I 5. Plantar extensor | 1. Kodiveli Chooranam 2. Kiranthikathi thylam 3. Thokkanam 4. Varmam | Partially |

DOA - Date of Admission ; DOD - Date of Discharge ; UL - Upper Limb

LL - Lower Limb ; DTR - Deep Tendon Reflex ; B.P. - Blood Pressure

EXAMINATION OF CRANIAL NERVES

| S.No | I.P No. | Olfactory Nerve | Optic Nerve | Oculomotor Nerve | Trochlear Nerve | Trigeminal Nerve | Abducent Nerve | Facial Nerve | Vestibulo cochlear Nerve | Glosso pharyngeal Nerve | Vagus Nerve | Spinal accessory Nerve | Hypoglossal Nerve |
|-------------|----------------|------------------------|--------------------|-------------------------|------------------------|-------------------------|-----------------------|---------------------|---------------------------------|--------------------------------|--------------------|-------------------------------|--------------------------|
| 1 | 854 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 2 | 883 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 3 | 1026 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 4 | 1192 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 5 | 2368 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 6 | 2605 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 7 | 2648 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 8 | 2807 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 9 | 2815 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 10 | 2841 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 11 | 2949 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 12 | 3025 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 13 | 146 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 14 | 525 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 15 | 554 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 16 | 565 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 17 | 649 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 18 | 826 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 19 | 1004 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |
| 20 | 1028 | Normal | Normal | Normal | Normal | Normal | Normal | affected | Normal | Normal | Normal | Normal | Normal |

EXAMINATION OF REFLEXES IN THE AFFECTED SIDE

| SN | IP.No | Superficial Reflexes | | | | | | | Deep Reflexes | | | | | | | | | |
|----|-------|----------------------|-----|------|------|------|---------|----|---------------|-----|---------|-----|-----------|-----|------|-----|-------|----|
| | | Abd | Cre | Corn | Conj | Pala | Plantar | | Biceps | | Triceps | | Supinator | | Knee | | Ankle | |
| | | | | | | | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt |
| 1 | 854 | + | + | + | + | + | ↓ | ↑ | I | II | I | II | I | II | I | II | I | II |
| 2 | 883 | + | + | + | + | + | ↓ | ↑ | I | III | I | III | I | II | I | II | I | II |
| 3 | 1026 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | II | I | III | I | III | I |
| 4 | 1192 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | II | I | II | I | I | I |
| 5 | 2368 | + | + | + | + | + | ↑ | ↓ | II | I | II | I | I | I | I | I | I | I |
| 6 | 2605 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | III | I | I | I | I | I |
| 7 | 2648 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | I | I | I | I | I | II |
| 8 | 2807 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | I | I | II | I | III | I |
| 9 | 2841 | + | + | + | + | + | ↓ | ↑ | I | II | I | II | I | I | I | I | I | I |
| 10 | 3025 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | I | III | I | III | I | II |
| 11 | 146 | + | + | + | + | + | ↑ | ↓ | II | I | II | I | III | I | II | I | III | I |
| 12 | 525 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | I | III | I | III | I | I |
| 13 | 554 | + | + | + | + | + | ↓ | ↑ | I | I | I | I | II | I | II | I | I | I |
| 14 | 565 | + | + | + | + | + | ↑ | ↓ | III | I | III | I | I | I | II | I | I | I |
| 15 | 649 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | I | II | I | II | I | I |
| 16 | 826 | + | + | + | + | + | ↑ | ↓ | I | I | I | I | I | II | I | III | I | II |
| 17 | 1004 | + | + | + | + | + | ↑ | ↓ | I | III | I | III | I | I | I | I | I | II |
| 18 | 1028 | + | + | + | + | + | ↓ | ↑ | II | I | II | I | I | I | I | I | II | I |

| S.N | IP.No | Superficial Reflexes | | | | | | | Deep Reflexes | | | | | | | | | |
|-----|-------|----------------------|------|------|------|---------|----|--|---------------|-----|---------|-----|-----------|----|------|----|-------|----|
| | | Abd | Corn | Conj | Pala | Plantar | | | Biceps | | Triceps | | Supinator | | Knee | | Ankle | |
| | | | | | | Rt | Lt | | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt. | Lt |
| 19 | 2815 | + | + | + | + | ↑ | ↓ | | I | II | I | II | I | II | I | II | I | II |
| 20 | 2949 | + | + | + | + | ↑ | ↓ | | I | III | I | III | I | II | I | II | I | II |

↓ Flexion ; ↑ Extension ; ↓↓ Diminished ;

Not Elicitable ;

+ Present

Cre - Cremastic ; Abd – Abdomen ; Corn - Corneal ;

Conj - Conjuntual ;

Pala - Palateral

EXAMINATION OF POWER

| SN | IP No | Wrist | | | | Elbow | | | | Hip | | | | Knee | | | | Shoulder | | | | | | | |
|----|-------|---------|----|-----------|----|---------|----|-----------|----|-----------|----|-----------|----|---------|----|-----------|----|-----------|----|-----------|----|----------|----|----|----|
| | | Flexion | | Extension | | Flexion | | Extension | | Abduction | | Adduction | | Flexion | | Extension | | Abduction | | Adduction | | Rotation | | | |
| | | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt | Rt | Lt |
| 1 | 854 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 | 5 | 2 |
| 2 | 883 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 |
| 3 | 1026 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 4 | 1192 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 5 | 2368 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 6 | 2605 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 7 | 2648 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 |
| 8 | 2807 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 |
| 9 | 2815 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 |
| 10 | 2841 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 |
| 11 | 2949 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 12 | 3025 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 13 | 146 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 |
| 14 | 525 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 |
| 15 | 554 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 16 | 565 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 17 | 649 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 |
| 18 | 826 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 |
| 19 | 1004 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 |
| 20 | 1028 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 |

EXAMINATION OF HAND GRIP

| S.No | I.P No. | Right | Left |
|-------------|----------------|--------------|-------------|
| 1 | 854 | Good | Poor |
| 2 | 883 | Good | Poor |
| 3 | 1026 | Poor | Good |
| 4 | 1192 | Poor | Good |
| 5 | 2368 | Poor | Good |
| 6 | 2605 | Poor | Good |
| 7 | 2648 | Poor | Good |
| 8 | 2807 | Good | Poor |
| 9 | 2815 | Poor | Good |
| 10 | 2841 | Good | Poor |
| 11 | 2949 | Poor | Good |
| 12 | 3025 | Poor | Good |
| 13 | 146 | Poor | Good |
| 14 | 525 | Poor | Good |
| 15 | 554 | Good | Poor |
| 16 | 565 | Poor | Good |
| 17 | 649 | Poor | Good |
| 18 | 826 | Poor | Good |
| 19 | 1004 | Poor | Good |
| 20 | 1028 | Good | Poor |

CASE REPORT OF TWENTY PATIENTS WHO WERE TREATED IN OUT PATIENT WARD

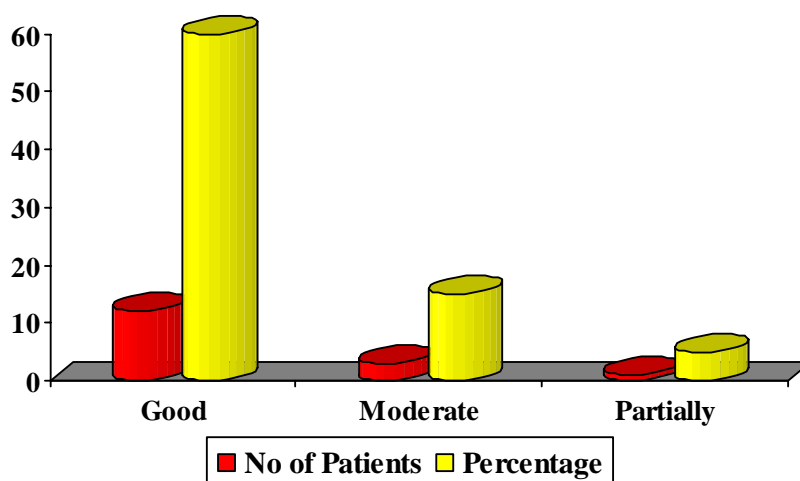
| S.N | O.P No. | Name | Age | Sex | Date of Registration | Duration of Illness | Diagnosis | Medicine | N.O.D | Result |
|-----|---------|----------------|-----|--------|----------------------|---------------------|-----------|--|-------|-----------|
| 1 | 83 | Rajamani | 58 | Male | 01.01.08. | 10 Months | PV – Lt | 1. Kodiveli Chooranam 2. Kiranthikathi Thylam | 60 | Good |
| 2 | 1998 | Jackin | 48 | Male | 05.01.08 | 1 ½ Year | PV – Rt | - do - | 74 | Good |
| 3 | 1997 | Arumugam | 49 | Male | 05.01.08 | 1 Year | PV – Lt | - do - | 57 | Good |
| 4 | 3076 | Ramakrishnan | 65 | Male | 09.01.08 | 2 ½ Yea | PV – Rt | - do - | 96 | Good |
| 5 | 7161 | Thangammal | 52 | Female | 26.01.08 | 6 Months | PV – Rt | - do - | 78 | Good |
| 6 | 9709 | Gnanasigamani | 18 | Female | 05.02.08 | 1 year | PV – Rt | - do - | 24 | Moderate |
| 7 | 15247 | Subbiah | 60 | Male | 28.02.08 | 7 Months | PV – Lt | - do - | 90 | Good |
| 8 | 22801 | Pandi | 56 | Male | 03.01.08 | 18 Months | PV – Lt | - do - | 22 | Partually |
| 9 | 22802 | Sivaghanam | 60 | Male | 03.04.08 | 6 Months | PV – Lt | - do - | 39 | Moderate |
| 10 | 22803 | MohanaSundaram | 60 | Male | 03.04.08 | 4 Months | PV – Lt | - do - | 40 | Moderate |
| 11 | 22804 | Chellammal | 70 | Female | 03.04.08 | 4 Months | PV – Rt | - do - | 94 | Good |
| 12 | 23921 | Jesuraj | 58 | Male | 12.04.08 | 2 Years | PV – Rt | - do - | 42 | Good |
| 13 | 24104 | Sabapathy | 50 | Male | 16.04.08 | 3 Years | PV – Lt | - do - | 53 | Good |
| 14 | 23824 | Beermohamed | 48 | Male | 20.04.08 | 1 Year | PV – Lt | - do - | 20 | Moderate |
| 15 | 23128 | Essaki | 51 | Male | 20.04.08 | 8 Months | PV – Rt | - do - | 30 | Good |
| 16 | 23160 | Manimaran | 43 | Male | 20.04.08 | 2 Months | PV – Rt | - do - | 31 | Good |
| 17 | 25306 | Lakshmanan | 52 | Male | 24.04.08 | 2 ½ year | PV – Rt | - do - | 26 | Good |
| 18 | 29635 | Murugan | 60 | Male | 06.05.08 | 10 Months | PV – Rt | - do - | 28 | Good |
| 19 | 29634 | Sudalaimuthu | 60 | Male | 06.05.08 | 3 Year | PV – Rt | - do - | 28 | Moderate |
| 20 | 29636 | Pandiyaraj | 60 | Male | 06.05.08 | 2 Months | PV – Rt | - do - | 24 | Moderate |

GRADATION OF RESULT ON PAKKA VAADHAM

According to the prognosis of the Pakkavaadham, among the twenty patients Good clinical result was seen in twelve patients (60%), Moderate clinical result was seen in three patients (15%) and partialy clinical result was seen in one patient 's (5%)

| S.No | Result | No. of Patients | Percentage |
|------|-----------|-----------------|------------|
| 1 | Good | 12 | 60% |
| 2 | Moderate | 3 | 15% |
| 3 | Partially | 1 | 5% |

Gradation of Result on Pakkavatham



DISCUSSION

“Pakka vaadham” which can be more or less correlated with "Hemiplegia" on par with modern medicine is one of the vaadha disease affecting the one half of the body and interfering with the functions of upper and lower limbs of one side and may associate with cranial nerves or not. The only literary evidence of this disease is found in the classification of Vaadha diseases in Yoogi Vaidhdhiya Sindhamani Perunool - 800 which gives the etiology and the clinical features also.

This dissertation work includes a literary collection of views both siddha and modern aspects of this disease. For the clinical study 20 patients were diagnosed clinically in the out patient department as "Pakkavaadham" as per the symptamatology and the Envagai thervugal and other siddha methods of diagnosis were selected and admitted In patient ward.

On the day of admission routine lab investigations (Blood, and Urine tests), radiological investigations, general and systemic examinations, Neerkuri and Neikuri were done in all 20 patients in both siddha and modern aspects. An individual case sheet was prepared and maintained to all the patients.

On early morning the next day of admission Murukkan viththu Pill 1 was given as the initial treatment of vaadha diseases for neutralizing the vitiated vaadham to some patients.

The internal medicine Kodveli Chooranam 1g thrice a day after meals with hot water and the external medicine, Kiranthikathi thylam for the external application on the affected with Thokkanam and varmam were given to all patients regularly according to the blood pressure and temperature. All the patients were advised to follow the paththiyam and some patients were advised to yogaasanam, piraanaayaamam and thiyaanam as supportive therapies.

Another 20 patients were also treated with the trial drugs in the Out patient department.

- A. According to siddha literatures common causes given by various authors were lifting or carrying heavy loads, exposure to chillness, excessive intake of fruits and tubers, drinking raw rain water, excessive intake bitter,

astrigent and pungent tastes and getting angry. Regarding the etiology of hemiplegia in modern medicine trauma, hypertension, brain tumours and infections. From the etiology of pakkavaadham given by siddha and modern literatures the exaggerated vaadham affects the arteries by narrowing them and affects the nerves causes pakkavaadham.

- B. Pre disposing, factors like exposure to cold, occupation, physical stress, trauma, age factor, hypertension, diabetes mellitus, brain tumour infectious diseases and epilepsy.

1. INCIDENCE OF PAKKAVAADHAM

Among the 20 patients of varied aetiology who were admitted in the In-Patient ward for study the incidence is Eighteen patients in males (90%) and two patients in females (10%)

In the Out-Patient ward, the incidence is 85% in males and 15% in females.

2. AGE INCIDENCE

Among the 20 patients the highest incidence was in the age group of 51-60 years (55%). Two patients belonged to the age group of 31-40 years (10%). Four patients to the age group of 41-50 years (20%) eleven patients to the age group of 51-60 years (55%) and four patients to the age group of 61-70 years (20%)

3. OCCUPATION

Six male patients were coolies (30%), Four agricultural Farmer (20%), two metal workers (10%), three merchants (15%), six house wives (30%) and one was employed (5%) during incidence.

4. SOCIO - ECONOMICAL STATUS

The majority of the patients about fifteen belonged to economically middle families (75%) , three patients belonged to high class (15%) and two(10%) patient belonged to the poor .

5. REFERENCE TO GUNAM

Five patients with Rajo gunam formed the highest incidence (25%) and remaining fifteen patients had Thamo gunam (75%)

6. REFERENCE TO DIET

Among the twenty patients, eighteen patients were Non-Vegetarian (90%) and two patients were Vegetarians, (10%)

7. FAMILY HISTORY REFERENCE

Out of twenty patients, two patients were having the positive family history (10%) and remaining eighteen patients were having negative family history (90%).

8. DISTRIBUTION ACCORDING TO MUKKUTRA KAALAM

Among twenty patients, two belonged to Vaadha kaalam during 1-33 years. Sixteen patients under study belonged to the Piththa Kaalam during 34-66 years (75%) and four patients belonged to the kabha kaalam during 67-100 years (20%).

9. THINAI (OR) LAND INCIDENCE

Among the twenty patients, Eighteen patients hailed from Marudham (90%), two patients from Neidhal (10%).

10. SEASONAL (PARUVA KAALA) INCIDENCE

Out of Twenty patients, one patient were affected during kaar kaalam (5%), six patients during koothir kaalam (30%), one patients during Munpani kaalam (5%) eight patient during pinpani kaalam (40%) three patient during Elavenir kaalam (50%) and one patient during Mudhuvenir kaalam (5%)

11. INCIDENCE OF PAKKA VAADHAM ACCORDING TO THE SIDE EXISTS

Among the twenty patients, the right side was affected in thirteen patients (65%) and left side was affected in five patients (25%)

12. INTEREST TO THE TREATMENT AFTER STROKE

Among twenty patients, two was admitted for siddha system of treatment immediately after stroke, twelve patients were admitted after 1-3 months (60%), two patients admitted after 4-6 months (10%), Two patients admitted after 1-2 years (10%), two patients admitted after 2-3 years (10%), of stroke.

13. GRADATION OF RESULT ON PAKKAVAADHAM

According to the prognosis of the Pakkavaadham, among the twenty patients, Good clinical result was seen in twelve patients (60%) Moderate clinical result was seen in three patients (15%) and partial improvement in one patients (5%)

14. DURATION OF ILLNESS AT THE TIME OF ADMISSION

At the time of admission among the twenty patients, sixteen patients had been suffered below 1 year (80%), 2 patients from 1 to 2 years (10%), 2 patients from 2 to 3 years (10%)

15. PRECIPITATING FACTORS

In the twenty patients, Hypertension was the precipitating factor in seventeen patients (85%), one patient had both Hypertension and Diabetes (5%) and two patients was diabetic (10%)

16. DISTRIBUTION ACCORDING TO THE TOTAL NO. OF DAYS TREATED

Among the Twenty patients, eleven patients were treated for 31 to 40 days (55%) two patients for 41-50 days (10%) three patients for above 50 days (15%)

17. CLINICAL PRESENTATION

All the patients admitted in the ward were carefully examined. The signs and symptoms of all patients were noted. Among twenty patients the difficulty to use left upper limb and lower limb was noted in nine patients (45%), the difficulty to use right upper limb and lower limb was noted in eleven patients (55%), the deviation of mouth was noted in twenty patients (100%), Drooling of saliva was noted in eleven patients (55%), difficulty in speaking was noted in all patients (100%), difficulty in swallowing

was noted in one patient (5%), The breathlessness was noted in three patients (15%), the excessive thirst was noted in one patient (5%), frequency of micturition noted in three patients (15%), burning sensation all over the body was noted in fourteen patients (70%), past history of similar episode noted in two patient (10%), loss of weight noted in one patients (5%), giddiness noted in fourteen patients (70%), circumduction gait found in all patients (100%), clubbing had seen in two patients (10%), pedal oedema noted in two patients (10%), normal higher intellectual function seen in all the twenty patients (100%), constipation was complained in one patient (5%), mental depression was noted in seven patients (35%), pain in the joints was complained in all patients (100%), raise in the temperature was noted in one patient (5%), loss of appetite seen in three patients (15%), cough noted in three patients (15%) and tiredness seen in ten patients (50%).

18. CONDITIONS OF UYIR THAADHUKKAL

1. Vaadham

1. Among the twenty patients, three patients indicated breathlessness (15%), in one patient (5%) derangement of abaanan was observed as constipation.
2. Derangement or viyaanan was noted in all patients by the resulted movements of one side limbs and nutritional changes of the muscles (100%).
3. Derangement of udhaanan was noted in three patients (15%) having cough.
4. Derangement of samaanan was invariable in all the patients due to the derangement of other vaayus (100%)
5. Naagan was noted to be deranged in seven patients who were mentally depressed (35%)
6. Koorman was normal in all patients (100%)
7. Kirugaran was found to be deranged in eleven patients as evidenced by Drolling of saliva (55%)
8. Derangement of dhevaththathan was found in all the patients as indicated by lethargy or disturbed sleep rhythm (100%)

2. PITHTHAM

1. The conditions of piththam with reference to its five types were studied in all patients.
2. Anar piththam was noted to be deranged in three patients as evidenced loss of appetite (15%)
3. Ranjaga piththam was found to be deranged normal in all patients, no evidenced by low Hb% in blood.
4. Piraasaga piththam was found be normal in all the patients.
5. Alosaga piththam was normal in all patients. No evidenced for diminished vision.
6. Saadhaga piththam was found to be deranged in all patients evidenced by difficulty in attending their regular duties (100%).

3. KABHAM

1. The conditions of kabham were studied with reference to five kabham.
2. Deranged avalmbagam was noted in three patients with symptoms of cough and expectoration (15%)
3. Derangement of kiledhagam was noted in eleven patients with symptoms of Drolling of saliva (55%)
4. Pothagam was found to be normal in all twenty patients.
5. Derangement of tharpagam was noted in fourteen patients who had burning sensation of eyes and all over the body.
6. Sandhigam was found to be deranged in all patients with joint pain (100%)

20. CONDITIONS OF UDAL THAADHUKKAL

1. In all twenty patients, saaram was affected as evidenced by tiredness, lethargic and mentally depressed (100%)
2. Senneer was normal in all the patients
3. Oon was affected in all the patients as evidenced by muscle weakness (100%)
4. Kozhuppu was affected in all patients as evidenced by the difficulty of the half of the body movements.
5. Enbu was affected in all patients as evidenced by immobilization of joints (100%)
6. Moolai was affected in five patients evidenced by feeling of heaviness of the body (25%)
7. Sukkilam / Suronidham was normal in all twenty patients (100%)

20. PORIGALUM PULANGALUM

1. Mei (skin) was found to be normal in all patients
2. Vaai (mouth) was affected in all patients evidenced by the elevation of the mouth.
3. Mookku (nose) and sevi (ear) were found to be normal in all patients

22. ENVAGAI THERVUGAL

1. Naa was normal all patients 100% and the sense of taste was found to be normal
2. Niram was found normal in all patients
3. Mozhi was affected in all the patients as evidenced by difficulty in speaking (100%)
4. Vizhi was normal in all patients in five patients as evidenced by the presence of diminished vision (25%)

5. Sparisam was affected in all the patients as evidenced by muscle weakness (100%)
6. At the time of admission in all patients had no constipation (100%). The colour and smell of stools are found to be normal in all patients.
7. In neerkuri, edai of the mooththiram was affected in eleven patients by the evidence of puscells in mooththiram (55%)
8. The enjal was affected in three patients evidence of frequent micturition (15%)

In neikuri the oil drop in urine,

- a) Lengthens like snake in one patients - vaadhaneer 5%
- b) Spreads like ring in four patients - piththaneer 20%
- c) Appearing like pearl in fifteen patients - kabhaneer 75%
- d) Niram was affected in two patients evidenced by thick yellow colour
- e) The manam and nurai were found to be normal in all the patients.

23. NAADI NADAI

Naadi was affected in ten patients (50%) as evidenced by vaadham in seven patients (35%), vaadha kabham in three patients (15%)

OBSERVATION OF CLINICAL LABORATORY INVESTIGATIONS

At the time of admission routine laboratory investigations like Blood test, (WBC, Total count, Differential Count, Erythrocyte sedimentation Rate, haemoglobin level, sugar, urea, bleeding time, clotting time & PTT) and urine analysis were done properly.

HAEMATOLOGICAL STUDIES

1. OBSERVATION OF HAEMOGLOBIN CONTENT

The haemoglobin level (Hb%) was increased in almost all the patients. In two patients (10%) the Hb% was ranged from 10% to 20%.

2. LEUCOCYTES TOTAL COUNT

Total WBC count was above 8000/ cumm in all the patients. In seventeen patients it was ranged from 8000 to 10000 / cumm and in three patients it was ranged from 10000 to 12000 / cumm

3. WBC - DIFFERENTIAL COUNT

Polymorphs and lymphocytes counts are normal in all twenty patients. Eosinophil count was normal in all patients.

4. ERYTHROCYTE SEDIMENTATION RATE

Among the twenty patients the ESR was increased in two patients (10%) and it was showing to be normal in eighteen patients upto 30 to 40 mm / hr.

5. OBSERVATION OF BLOOD SUGAR

The random blood sugar was observed in all twenty patients it seemed to be normal in seventeen patients (85%) and it slightly increased in two patients (10%)

6. OBSERVATION OF BLOOD UREA

The blood urea was observed in all twenty patients it seemed to be normal in all patients (100%)

7. OBSERVATION OF SERUM CHOLESTEROL

The serum cholesterol was observed in all twenty patients it seemed to be normal in eighteen patients (90%) and it slightly increased in two patients (10%)

8. URINE ANALYSIS

For the analysis of urine in twenty patients, albumin was absent in all patients, sugar present in two patients (10%), pus and epithelial cells present in nine patients (45%)

9. MOTION ANALYSIS

No ova and cyst were found to all the twenty patients in motion analysis.

TREATMENT

The trial drugs were administered to the patients from the time of admission in the in-patients ward and continued till symptoms were reduced. Hence, pakkavaadham is a vaadha disease with nerve paralysis and so, the treatment aimed at providing relief from the symptoms and so, the treatment aimed at providing relief from the symptoms and slowing down the associated difficulties and control the predisposing factors.

The internal medicine, Kodiveli Chooranam and the external application of Kiranthikathi thylam with slight Thokanam and Varmam at the affected side were given depending upon the severity of the disease and the condition of the patient. Within this period most of the symptoms were relieved and the patients were more satisfied gradually. During those days some patients were advised to do Yogaasanam, Piraanaayaamam and Thiyanam as supportive therapies. They had satisfaction and quick relief than the others.

All the patients were also advised to observe paththiyam (Dietary and other restrictions) But, all aspects of Paththiyam could not be imposed in the In-patients ward for practical difficulties.

PROGNOSIS

According to the clinical condition, the patients were graded into mild, moderate and severe categories for practical purposes and convenience. The patient reported satisfactory improvement as certain degree of relief from difficulties within 15 days from the commencement of the treatment. In mild cases good relief was reported within 10 days of the treatment, in moderate cases within 20 days and in severe cases within 25 days.

The patients who were also treating with Thokkanam, Varmam, Yogaasanam, Piranaayaamam and Thiyaanam as supportive therapies along with main therapy were got good and quick relief than the other patients.

Out of twenty patients

1. Good relief (Normal blood pressure, controlled blood sugar, no Drolling of saliva, no giddiness, fluent speech and improvement in using the affected side) was reported in 14 patients.
2. Moderate relief (Normal blood pressure, control of blood sugar, reduced Drolling of saliva, reduced difficulty in speaking and occasional giddiness) was reported in 2 patients.
3. Partially improvement (Normal blood pressure, and Normal blood sugar, reducing Drolling of saliva and normal speaking was improved. But no effect in affected limbs) was reported in four patients.

Exercises to hands and legs were also advised to all patients.

The another twenty patients who were treated in the Out-patients ward also got good relief. They were also treated by special medicines and advised to do exercise.

No toxic or side effects were clinically and reportedly observed in any patient during the courses of the treatment.

SUMMARY

The research work on “PAKKAVAATHAM” was chosen with an intention to give solace to the patients who are suffering from the disease. The author had a chance of referring many siddha literatures and collected more information.

Medicines meant for research study where towards the patient is collected from both siddha system as well as modern system to medicine and a case sheet was prepared. (Model case sheet is affixed at the end of this dissertation book)

Separate case sheets were maintained for every patient who were admitted in the In-patient ward. Twenty patients were treated in the In-patient and another twenty patients in the out patient ward. The internal medicine Kodiveli Chooranam 1g thrice a day with hot water after food and the external medicine Kiranthikathi thylam for the external application with Thokkanam at the sides where affected to the patients.

The patients who were also treating with Yogaasanam Piranaayaamam, Thiyanam, Thokkanam, Varmam as supportive therapies along with main therapy have got good and quick relief than the other patients.

The favourable effects of the drugs of the treatment good relief was reported within 10 days in mild cases, within 20 days in moderate cases and within 25 days in severe cases. The follow up study was done in the out-patient department.

Exercises to affected limbs and face were also advised to all patients.

At the time of discharge relief or improvement was observed clinically and there was maintenance of physiological conditions seen in all patients.

The twenty patients who were treated in out-patient ward also good relief.

Medicines were given to the patients until most of the symptoms were relieved as per siddha medicine it was regarded as a cure from the disease.

No toxic or side effects were observed clinically or reportedly in any patients during the course of treatment and the follow up study.

From the clinical study it could be inferred that treatment with trial drugs considerably improves the functions of,

1. Viyaana, which is responsible for all the movement in the body and also sensory and motor activities.
2. Abaan, which is responsible for defaecation micturition, menstruation, parturition and ejaculation.
3. Naagan, which is responsible for movement of the eye ball, laziness, lassitude, quarrelling and arguing
4. Dhevathathan which is responsible for movements of the eye ball, laziness, lassitude, quarreling, arguing begging and much anger.
5. And samaan which is responsible for normal digestion and correction of other vaayus.

It could be also inferred that the trial drugs inhibit further vascular disorders and regulate the other physiological and biological processes of the body.

Research findings reveal about the disease and its impact in the body. Statistics taken the help of details in the case sheet were give clear knowledge about the disease.

Available investigations in modern medicine were also considered for diagnosis and to follow the prognosis of the patients.

The efficacy of the trial drugs were studied by bio-chemical analysis and pharmacological evaluations.

CONCLUSION

When the internal medicine Kodiveli Chooranam administered to the pakka vaadham patient along with kiranathi kadhi thylam for external application have a good relief.

Good clinical improved was observed in 14 (70%) patient out of 20 in-patient and 12 (60%) out patient.

Moderate clinical improvement was observed in 2 patients out of 20 in-patients and 4 out-patients.

Partially clinical improvement was observed in 4 patients out 20 in-patient and 4 out-patient ward.

Patient who had followed Yoga, Pranayamam, Thiyanam, Thokkanam, and Dietary advice have got good relief than others.

Because of engorging result clinically study may undertake with large number of patient with same drug with create a new era in the field of siddha medicine especially in the treatment of this diseases Pakkavatham. It may through light on relieving the patient from the clutches of crippling by this disease.

ANNEXURE - I

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2. PREPARATION OF THE TRIAL DRUGS

PREPARATION OF INTERNAL MEDICINE

Kodiveli Chooranam

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PREPARATION OF EXTERNAL MEDICINE

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PROPERTIES OF DRUGS

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| Botanical Name | : | Plumbago zeylanica |
| Family | : | Plumbaginaceae |
| Entlishment | : | Ceylon Lead.Wort |
| Sanskrit Name | : | Angi-Shika Chitraka – Vrikshnaha. |
| Malayalam Name | : | Tompa-koduveli. |
| Part Used | : | Root |
| Chemical Constituents | : | Plumbagtin, Sitosterol, glucoside. |

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| Botanical Name | : | TermInalia Chebula |
| Family | : | Combretaceae |
| English Name | : | Chebulic Myrobalan, ink nut |
| Sanskrit Name | : | Pathya, Sudha, Bhishak, Priya, Haritaki. |

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| Malayalam Name | : | Katukkai |
| Part uses | : | Fruit |
| Chemical constituents | : | Tanin, Chebulinic acid Tannicacid, Ballic acid Resin, Anthroquinone.- |

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|-----------------------|---|---|
| Botanical Name | : | Zingiber officinale |
| Family | : | Zingiberaceae |
| English Name | : | Dried ginger |
| Sanskirit Name | : | Nagarom |
| Malayalam Name | : | Chukku |
| Part used | : | Jubee (Dried) |
| Chemical constituents | : | Potassium oxalate Essential oil with camphene Phellacidcene |

Zingiberene.

Volatile oil : Contains camphene, citrol, Borneol, Zingilbeien, angecol, shegalo.

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Botanical Name : Pongamia pinnata.

English Name : Indian Beach

Sanstubut Name : Karanja

Malayalam Name : Punga

Part used : Root

Chemical Constituents : Bitter fatty oil - 27 - 36.4%
crystalline substances

1. Karanjin
2. Pongamol
3. Glabrin

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| Botanical Name | : | Nigella sativa |
| English Name | : | Black cumin, Small fernel |
| Sanskrit Name | : | Upakunchika |
| Malayalam Name | : | Karinchirakam |
| Part used | : | Seed |
| Chemical constituents | : | Essential oil, Glucoside Melantrin, Saponin. |

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| Botanical Name | : | Brassica Jancea |
| English Name | : | Blackmustard seed |
| Sanskrit Name | : | Rajika, Sarshapa |
| Malayalam Name | : | Karuththa – Kaduga |

Part used : seed
Chemical constituents : Glucoside, siuigrin, essential oil, megrosin.

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Botanical Name : Chuksasia tabulan's
Part used : Bark
Action : Counter irritant, febrifuge.

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Botanical Name : Alpinia galanga
English Name : Galangal the lesser
Sanskrit Name : Rasna

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| Malayalam Name | : | Aratha |
| Part used | : | Root |
| Chemical constituents | : | Essential oil. Galengin, Galangol. |

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| Botanical Name | : | Sesamum Indicum |
| English Name | : | Gingeli oil plant |
| Sanskrit Name | : | Tilem |
| Malayalam Name | : | Karuvella |
| Part used | : | seed |
| Chemical constituents | : | Contains fixed oil |

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| Botanical Name | : | Vigna mungo |
| English Name | : | Black gram |
| Sanskrit Name | : | Maasha |
| Malayalam Name | : | Ulunnu |
| Part used | : | seed |

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INFERENCE

1. The all ingredients are much used in the treatment of Vaadha diseases.
2. They are having pungent, bitter, taste slightly. The tastes are neutralizing Vaadham.
3. They are all used as a tonic and contains many nutrients, assimilate easily by the oral route. So they act 'alternative' to increase the power and tone of the patients.
4. The 'Chithiramoolam' Contains "Thee" boodham so it destroys the vaadha diseases.
5. The most drugs in these medicines are "Kayakalpha" drugs mentioned by the siddhars, so the medicine itself acts as a "Rejunuvator"
6. The medicine is tasteful and easily administered to bed ridden patients.
7. The active principles of all the drugs may take important part in the actions of the drugs.

ANNEXURE - II

ANALYSIS OF DRUGS

1. Bio - Chemical Analysis

The biochemical analysis of Kodiveli Chooranam was getting from the department of Biochemistry, Govt. Siddha Medical College, Palayamkottai.

2. Pharmacological analysis

The Pharmacological analysis done in the Department of Pharmacology, Govt. Siddha Medical College, Palayamkottai.

The external medicine, Kiranthikathi Thylam has mild anti - inflammatory effect in acute conditions.

The Pharmacological analysis of Kodiveli Chooranam in different forms shows the good anti - coagulant activity.

GOVT. SIDDHA MEDICAL COLLEGE, PALAYAMKOTTAI

1. BIO-CHEMICAL ANALYSIS OF KODIVELI CHOORANAM

Preparation of the extract

5 gms of choornam is weighed accurately and placed into a clean beaker Then

Qualitative analysis

| S.No | Experiment | Observation | Inference |
|------|---|----------------------------------|------------------------------------|
| 1 | TEST FOR CALCIUM : 2ml of the above prepared extract is taken in a clean test tube. Add 2ml 4% Ammonium oxalate solution is added to it | A white precipitate is formed | Indicates the presence of calcium |
| 2 | TEST FOR SULPHATE : 2ml of the extract is added to 5% barium chloride solution | A white precipitate is formed | Indicates the presence of sulphate |
| 3 | TEST FOR CHLORIDE : The extract is treated with silver nitrate solution | A white precipitate is formed | Indicates the presence of chloride |
| 4 | TEST FOR CARBONATE : The substance is treated with concentrated HCL | No brisk effervescence is formed | Absence of carbonate |
| 5 | TEST FOR ZINC : The extract is added with Potassium Ferro cyanide solution. | A white precipitate is formed | Indicates the presence of Zinc |
| 6 | TEST FOR IRON : FERRIC : The extract is treated with glacial acid and potassium | No blue colour is formed | Absence of Ferric Iron. |
| 7 | TEST OF IRON FERROUS : The extract is treated with concentrated Nitric acid and ammonium thio cyanate | No blood red colour is formed | Absence of Ferroue Iron. |

| | | | |
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| 8 | TEST FOR PHOSPHATE : The extract is treated with ammonium Molybdate and concentrated nitric acid | No yellow precipitate is formed | Absence of phosphate |
| 9 | TEST FOR ALBUMIN : The extract is treated with Esbach's reagent | No Yellow precipitated is formed | Absence of Albumin |
| 10 | TEST FOR TANNIC ACID : The extract is treated with Ferric Chloride reagent. | Blue black precipitate is formed | Indicated the presence of Tannic acid. |
| 11 | TEST FOR UNSAURATION : Potassium permanganate solution is added To the extract | It gets decolorized | Indicates the presence of unsaturated compound. |
| 12 | TEST FOR THE REDUCING SUGAR : 5ml of Benedict's qualitative solution is taken in test tube and allowed to boil for 2mts and added 8-10 drops of the extract and again boil it for 2 mts. | Colour change occurs | Indicates the presence of Reducing Sugar. |
| 13 | TEST FOR AMINO ACID : One or two drops of the extract is placed on a filter paper and dried it well after drying 1% Ninhydrin is sprayed over the same and Dried it well. | Violet colour is formed. | Indicates the presence of Amino Acid. |

2. PHARMACOLOGICAL ANALYSIS

ANALGESIC ACTION OF KODIVELI CHOORANAM

Introduction

According to siddha medicine the Kodiveli Chooranam is indicated in vatha diseases. From this indication the drug Kodiveli Chooranam might possess analgesic activity.

Aim

To study the analgesic effect of Kodiveli Chooranam on albino rats by tail flick method.

Materials and Methods

Preparation of the test drug

100mg of Kodiveli Chooranam was suspended in 5ml of water and 5ml of honey of suspending agent. This 1 ml contained 100mg of the test drug.

Equipement

Hot water bath

Procedure

Six male albino rats (weighing 80 -100gms) were used in three groups. The animals were allowed to free access to food and water until they brought for the experiment. The animals which showed the positive response to the stimulus within a given time were selected for the study.

After the selection of animals which were responding to stimulus with 2 seconds, they were divided into 3 groups, each group consisting of two rats.

The hot water was maintained at 55° C. The tip of the tail was immersed into the water bath and the time was noted when the rat flicked the tail.

First group was administered with Kodiveli Chooranam at a dose of 100mg / 100gm body weight of the animal.

Second group was administered with paracetamol at a dose of 10mg /gm of body weight. Third group was given to the 1ml of water and kept as control.

After the drug administration, the reaction time of each rat after half an hour and one hour were noted in each group (when a rat fails to flick the tail, it should not be continued beyond 8 seconds to avoid injury) and the average was calculated.

The results of control group, standard group and drug treated group were tabulated and compared.

Results

Effect to Kodiveli Chooranam

| S N | NAME OF THE DRUGS / GROUPS | DOSE 100 GRAM BODY WEIGHT | INITIAL READING | AFTER DRUG ADMINISTRATION | | | MEAN DIFFERENCE | REMARKS |
|--------|----------------------------------|------------------------------------|--------------------|---------------------------|-----------------|-------------------|--------------------|--------------------|
| | | | | ½ hr average | 1 hr average | 1 ½ hr average | | |
| 1 | Control | 2 ml | 2 secs | 2 secs | 2.5 secs | 2.5 secs | 2.5 secs | |
| 2 | Std | 20 mg | 2 secs | 2.5 secs | 4 secs | 6.7 secs | 6.7 secs | |
| 3 | Kodiveli Chooranam | 200mg | 2 secs | 3 secs | 3.0 secs | 4.5 secs | 4.5 secs | Moderate Action |

Inference

From the above tabulation it is noted that Kodiveli Chooranam has Moderate analgesic action.

Study of Acute Anti-inflammatory by hind paw method – using plethysmograph using the drug on Kodiveli Chooranam

Aim

To study the acute anti – inflammatory effect on Kodiveli Chooranam

Method

The acute anti – inflammatory activity of Kodiveli Chooranam was screened by rat Hind paw edema method.

Preparation of the test drug

200 mg of Kodiveli Chooranam was suspended in 5 ml of water and 5ml of honey. From the above test drug 1ml was administered orally and this 1ml contain 100 mg Manosilai Kattu chenduram

Procedure

The anti - inflammatory activity of Kodiveli Chooranam was studied in healthy Albino - rats weighing 100-150gms. Six rats were selected and divided into three groups, each containing three rats. The first group was given distilled water 1ml, internally and was kept as control. The second group was given the test drug at a dose of 20mg / 100gms body weight. The third group was given ibuprofen at a dose of 20mg / 100g body weight.

Before administration of the drug, the hind paw volume of all rats were measured by dipping the hind paw upto the tibiodorsal junction in a mercury plethymography. Soon after measurement, the drug was administered internally.

An hour after administration of the drugs a subcutaneous injection of 0.1ml of 1% W/V of carrageenin in water was injected in the plantar surface of both the hind-paw and volume was measured once again. The difference between the initial and final volumes would show the amount of inflammation. Taking the volume in the control group as 100% of inflammation, the inflammation or anti – inflammatory effect of the drug was calculated. Tabulations of the results were recorded.

Results

Effect of Kodiveli Chooranam

| S. N | NAME OF DRUG / GROUPS | DOSE 100 GRAM BODY WEIGHT | INITIAL READING AVERAGE | FINAL READING AVERAGE | MEAN DIFFERENCE | PERCENTAGE IN FLAMMATION | PERCENTAGE INHIBITION | REMARKS |
|------|-----------------------|---------------------------|-------------------------|-----------------------|-----------------|--------------------------|-----------------------|----------------------------|
| 1 | Control | 2 ml | 0.55 | 1.4 | 0.85 | 100 | Nil | |
| 2 | Std | 20 mg | 0.55 | 0.85 | 0.3 | 35.2 | 64.8 | |
| 3 | Kodiveli Chooranam | 200 mg | 0.7 | 1.0 | 0.3 | 35.2 | 64.8 | has got significant Aciton |

Inference :

From the above experiment it is observed that the test drug Kodiveli Chooranam has got significant acute anti inflammatory action.

Study of Acute Anti-inflammatory by hind paw method Using plethysmograph using the drug on Kiranthi Kathi Thylam

Aim

To study the acute anti - inflammatory effect on Kiranthi Kathi Thylam.

Method

The acute anti - inflammatory activity of Kiranthi Kathi Thylam. was screened by rat Hind paw edema method.

Preparation of the test drug

2 mlof Kiranthi Kathi Thylam was suspended in 5 ml of water. From the above test drug 1ml was administered orally and this 1ml contain 100 mg Manosilai Kattu chenduram

Procedure

The anti - inflammatory activity of Kiranthi Kathi Thylam was studied in healthy Albino - rats weighing 100 -150gms. Six rats were selected and divided into three groups, each containing three rats. The first group was given distilled water 1ml, internally and was kept as control. The second group was given the test drug at a dose of 20mg / 100gms body weight. The third group was given ibuprofen at a dose of 20mg / 100g body weight.

Before administration of the drug, the hind paw volume of all rats were measured by dipping the hind paw upto the tibiodorsal junction in a mercury plethymography. Soon after measurement, the drug was administration internally.

An hour after administration of the drugs a subcutaneous injection of 0.1ml of 1% W/V of carrageenin in water was injected in the plantar surface of both the hind-paw and volume was measured once again. The difference between the initial and final volumes would show the amount of inflammation. Taking the volume in the control group as 100% of inflammation, the inflammation or anti – inflammatory effect of the drug was calculated. Tabulations of the results were recorded.

Results

Effect of Kiranthi Kathi Thylam

| S. N | NAME OF DRUG / GROUPS | DOSE 100 GRAM BODY WEIGHT | INITIAL READING AVERAGE | FINAL READING AVERAGE | MEAN DIFFERENCE | PERCENTAGE IN FLAMMATION | PERCENTAGE INHIBITION | REMARKS |
|------|-----------------------|---------------------------|-------------------------|-----------------------|-----------------|--------------------------|-----------------------|--------------------|
| 1 | Control | 2 ml | 0.55 | 1.4 | 0.85 | 100 | Nil | |
| 2 | Std | 20 mg | 0.55 | 0.85 | 0.3 | 35.2 | 64.8 | |
| 3 | Kodiveli Chooranam | - | 0.6 | 0.95 | 0.35 | 41.1 | 58.9 | Significant Action |

Inference

From the above experiment it is observed that the test drug Kiranthi Kathi Thylam has got significant acute anti inflammatory action.

ANTI COAGULANT EFFECT OF KODIVELI CHOORANAM IN DIFFERENT FORMS (IN - VIVO)

Aim

To study the anti – coagulant effect of Kodiveli Chooranam

Preparation of test drug

As the Kodiveli Chooranam in nature and incompletely dissolved in distilled water or in blood, the Chooranam form of Kodiveli Chooranam is taken for study.

- i. 1 gm of Kodiveli Chooranam was dissolved in 1ml of distilled water.
- ii. 1 gm of Kodiveli Chooranam was dissolved in 1ml of distilled water and mixed with 1ml of human fresh blood in different quantity levels were estimated.

The fresh blood taken from the human source is the initial time and the blood coagulated inside the capillary tube and form a fibrin thread is the Final time. The time taken to coagulate the blood inside the capillary tube is the clotting time and the mean clotting time is calculated tube is the clotting time and the mean clotting time is calculated for each experiment. The same experiment was carried out into distilled water, aspirin, EDTA and heparin subsequently. The values are tabulated.

| Drug | Dose | Bleeding Time | Result |
|---------------------------|-------------|----------------------|--------------------|
| Control | 1 gm | 4.55 secs | |
| Std (Vitamin K tablet) | 1 gm | 2.55 secs | |
| Kodiveli Chooranam | 1 gm | 2.40 secs | Significant Action |

Inference

From the above experiment it is observed that the test drug Kodiveli Chooranam has got significant Anti Coagulant action.

CASE SHEET PROFORMA FOR "PAKKA VATHAM"
GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL
POST GRADUATE DEPARTMENT,
PALAYAMKOTTAI, TIRUNELVELI-2

Branch - III Sirappu Maruthuvam

| | | | |
|-------------------|---|-------------------|---|
| I.P.No | : | Occupation | : |
| Bed No | : | Income | : |
| Ward | : | Nationality | : |
| Name | : | Religion | : |
| Age | : | Date of Admission | : |
| Sex | : | Date of Discharge | : |
| Permanent Address | : | Diagnosis | : |
| Result | : | Medical Officer | : |

COMPLAINTS AND DURATION

H/O. PRESENT ILLNESS

H/O. PAST ILLNESS

H/o. Diabetes Mellitus, Hypertension, Pulmonary Tuberculosis and STD

TREATMENT HISTORY

FAMILY HISTORY

Similar episode in the family :

H/o Consanguinous marriage of parents :

PERSONAL HISTORY

| | |
|--|---|
| Marital Status | : |
| Siblings | : |
| Habits - Smoking, alcoholic, Tobacco chewing. | : |
| Diet. | : |

| | |
|--------------------------|---|
| MENSTRUAL HISTORY | : |
|--------------------------|---|

| | |
|----------------------------|---|
| OBSTETRICAL HISTORY | : |
|----------------------------|---|

| | |
|------------------------------|---|
| PROVISIONAL DIAGNOSIS | : |
|------------------------------|---|

GENERAL EXAMINATION

| | |
|-------------------------------|---|
| Consciousness | : |
| Comfortable / Not Comfortable | : |
| Built | : |
| Nutrition | : |
| Anaemia | : |
| Jaundice | : |
| Cyanosis | : |
| Lymphadenopathy | : |
| Clubbing | : |
| Oedema | : |

Vital Signs

| | |
|------|---|
| Temp | : |
| BP | : |

Pulse

| | |
|--------|---|
| Rate | : |
| Rhythm | : |
| Volume | : |

| | |
|-----------------------------|---|
| Character | : |
| RR | : |
| HR | : |
| Felt in all Peripheral area | : |
| Condition of arterial wall | : |
| Radio femoral delay | : |

SIDDHA ASPECT

Nilam

Kurinchi
Mullai
Marutham
Neithal
Palai

Udal Nilai

Vatham
Pitham
Kapam
Kalappu Udal

Gunam

Sathuvam
Rasatham
Thamasam

Iymporigal

Kan
Kathu
Mooku
Vaai
Mei

Kanmenthiriyam

Kai

Kaal

Vaai

Eru Vaai

Karu Vaai

Uyir thathukkal

A. Vatham

Piranan

Abanan

Viyanan

Uthanan

Samanan

Nagan

Koorman

Kirukaran

Devathathan

Thananjeyan

B. Pitham

Anarpitham

Ranjagapitham

Sathagapitham

Alosagapitham

Pirasagapitham

C. Kabam

Avalambagam

Kilethagam

Pothagam

Tharpagam

Santhigam

XI. Udal Thathukkal

Saaram

Senneer

Oon

Kozhuppu

Enbu

Moolai

Sukkilam / Suronitham

XII. Envagai Thervugal

Naadi

Sparisam

Naa

Niram

Mozhi

Vizhi

Malam -

Niram,

Edai,

irugal,

ilagal

Moothiram

a) Neerkuri

b) Neikuri

Niram

Manam

Edai

Nurai

Enjal

MODERN ASPECTS

Examination of Cranial Nerves

I. Olfactory nerve

Smell :

II. Optic Nerve :

Acquit of vision :

Field of Vision :

Colour Vision :

Accommodation reflex :

Light reflex :

III. Oculomotor N :

IV. Trochlear nerve :

V. Trigeminal N

Sensation on face :

VI. Abducent N

Movements of eyeball :

Diplopia :

VII. Facial N

Wrinkling of forehead :

Closing the eyelids :

Showing teeth :

Whistling :

Blowing the cheek :

Eating :

Taste in the ant 2/3rd of the tongue :

H/o Hyperacoustis. :

VIII. Vestibulo - Cochlear N

Hearing :

Rinnes test :

Webers test :

H/o Vertigo :

IX. Glosso Pharyngeal N

| | |
|---------------------------------------|---|
| Taste in the Post 1/3rd of the tongue | : |
| Gag reflex | : |
| Palatal reflex | : |

X. Vagus N

| | |
|--------------------------|---|
| Gag reflex | : |
| H/o. nasal regurgitation | : |

XI. Spinal accessory N

| | |
|-------------------------------------|---|
| Shrugging of shoulder | : |
| Turning the head against resistance | : |

XII. Hypo glossal N

| | |
|--------------------|---|
| Movement of tongue | : |
| Tongue deviation | : |
| Fasciculation | : |
| Wasting | : |

EXAMINATION OF CENTRAL NERVOUS SYSTEM

| | |
|------------|---|
| Handedness | : |
|------------|---|

HIGHER FUNCTION TEST

| | |
|-------------------------|---|
| 1. Mental Function | : |
| Appearance | : |
| Behavior | : |
| Communication | : |
| Intelligence | : |
| Educational level | : |
| Language | : |
| Dressing | : |
| Interest on Surrounding | : |
| Expression to greeting | : |
| Conversation | : |

- 2. Emotion :
- 3. Sleep :
- 4. Delusion and hallucination :
- 5. Orientation :
 - Time :
 - Place :
 - Person :

6. Clouding of consciousness (Dementia / Delirium)

- 7. Memory :
 - Remote memory :
 - Recent memory :
 - Immediate memory :

- 8. Speech :
 - Articulation :
 - Fluency :
 - Verbal comprehension :
 - Naming :
 - Repetition :
 - Reading :
 - Writing
 - Apraxia :
 - Acalculia :
 - Alexia :
 - Comprehension of language visual field

MOTOR SYSTEM

- | 1. Bulk of the Muscles | R | L |
|-------------------------------|----------|----------|
| Upper arm | : | |
| Fore arm | : | |
| Thigh | : | |
| Leg | : | |

2. Power

| Hand Grip | | | Right | Left |
|------------|-------------|-----------------|-------|------|
| Upper Limb | Shoulder | Extension | | |
| | | Flexion | | |
| | | Abduction | | |
| | | Adduction | | |
| | | Rotation | | |
| | Elbow | Extension | | |
| | | Flexion | | |
| | Wrist | Flexion | | |
| | | Extension | | |
| | | Pronation | | |
| | | Supination | | |
| | | Abduction | | |
| | | Adduction | | |
| Lower Limb | Hip Joint | Extension | | |
| | | Flexion | | |
| | | Abduction | | |
| | | Adduction | | |
| | | Rotation | | |
| | Knee Joint | Flexion | | |
| | | Extension | | |
| | Ankle Joint | Dorsi Flexion | | |
| | | Plantar Flexion | | |
| | | Inversion | | |
| | | Eversion | | |

Grade : 0 - Absence ; 1 – Present ; 2 - Brisk ; 3 – Very Brisk; 4 – Clonus

| | | | |
|------------------------|---|----------|----------|
| 3. Tone | : | R | L |
| Upper Limb (Flexors) | : | | |
| Biceps | : | | |
| Triceps | : | | |
| Elbow | : | | |
| Wrist | : | | |
| Lower Limb (Extensors) | : | | |
| Knee | : | | |

4. Co-ordination

| | | | |
|----------------------|---|----------|----------|
| Upper limb | | R | L |
| Finger nose test | : | | |
| Finger - finger nose | : | | |
| Tapping in a circle | : | | |
| Dysdiadochokinesis | : | | |
| Lower Limb | | R | L |
| Knee shin ankle test | : | | |
| Draw a circle in air | : | | |
| Tandem walking | : | | |
| Foot pat test | : | | |
| Under burgers test | : | | |

5. Involuntary movements

Epilepsy, myoclonus, tremor, athetosis, chorea, hemiballismus, dyskinesia, dystonia, torticollis, ties, myokymia, asterixis, tetany and cramps - not / present.

EXAMINATION OF SENSORY SYSTEM

| | | | |
|-------------|---|----------|----------|
| Superficial | | R | L |
| Touch | : | | |
| Pain | : | | |
| Temp | : | | |

| Deep | | R | L |
|---------------------------|---|----------|----------|
| Position sense | : | | |
| Joint Sense (thumb) | : | | |
| Vibration sense | : | | |
| Tactile localization | : | | |
| Two Point discrimination | : | | |
| 2-5 mm Pulp of the finger | : | | |
| 2-3 cm Palm | : | | |
| 4 cm Sole | : | | |
| 5 cm chest, Leg, Back | : | | |
| Stereognosis | : | | |
| Graphaesthesia | : | | |
| Sensory inattention | : | | |

REFLEXES

1. Superficial reflex

| | |
|-------------------------|---|
| Corneal reflex | : |
| Conjunctival (T6 - T12) | : |
| Abdominal reflex | : |
| Cremasteric reflex | : |
| Plantar reflex | : |
| Oppenheims sign | : |
| Gardons reflex | : |
| Hoffman reflex | : |
| Wartenberg's sign | : |

2. Deep Reflex

| | |
|----------------|---|
| Biceps jerk | : |
| Triceps jerk | : |
| Supinator jerk | : |
| Knee jerk | : |
| Ankle jerk | : |
| Jaw jerk | : |

Clonus

| | |
|-----------------|---|
| Ankle Clonus | : |
| Patellar Clonus | : |

| | | | |
|--|---|----------|----------|
| 3. Released reflexes (Primitive reflexes) | : | R | L |
|--|---|----------|----------|

| | |
|---------------------------------------|---|
| Grasp reflex (radial border) | : |
| Avoiding reflex (ulnar border) | : |
| Palmo mental reflex (thenar eminence) | : |
| Sucking reflex (Angle of mouth) | : |
| Snout reflex | : |
| Gabellar tap reflex | : |

CEREBELLAR SIGNS

| | |
|---------------------------|---|
| Dysynergia | : |
| Dysmetria | : |
| Dysidiadochokinesia | : |
| Rebound phenomenon | : |
| Hypotonia | : |
| Abnormalities of the gait | : |
| Speech disturbances | : |
| Scanning | : |
| Dysarthria | : |
| Nystagmus | : |
| Pendular Knee jerk | : |
| Intention tremor | : |
| Titubation | : |

GAIT

| | |
|---------------|---|
| Circumduction | : |
|---------------|---|

SIGNS OF MENINGEAL IRRITATION

| | |
|----------------|---|
| Neck Stiffness | : |
| Kernig's sign | : |

BRUIT

| | |
|---------|---|
| Face | : |
| Occiput | : |
| Carotid | : |

EXAMINATION OF OTHER SYSTEMS

1. Cardio Vascular system

| | |
|-------------|---|
| Inspection | : |
| Palpation | : |
| Percussion | : |
| Ausculation | : |

2. Respiratory System

NVBS

3. Abdomen

| | |
|--------------|---|
| Tenderness | : |
| Organomegaly | : |
| Free fluid | : |

INVESTIGATION

I. Blood

| | |
|---------------|---|
| TC | : |
| DC | : |
| ESR | : |
| HB | : |
| Bleeding Time | : |
| Clotting Time | : |
| Blood Sugar | : |

| | |
|-------------------|---|
| Blood Urea | : |
| Lipid Profile | : |
| Serum Cholesterol | : |
| Serum Creatinine | : |
| VDRL | : |
| HIV | : |

II. Urine

| | |
|----------|---|
| Albumin | : |
| Sugar | : |
| Deposits | : |

III. X-Ray / ECG

| | |
|-------|---|
| Chest | : |
| Skull | : |

| | |
|--------------------|---|
| IV. CT Scan | : |
|--------------------|---|

| | |
|--------------------|---|
| V. MRI Scan | : |
|--------------------|---|

| | |
|---------------------|---|
| Case Summary | : |
|---------------------|---|

| | |
|------------------|---|
| DIAGNOSIS | : |
|------------------|---|

SIRAPPU MARUTHUVAM

Daily Report

[illegible]

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